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ABSTRACT

The study was conducted to identify occupational survival skills--the basic knowledges, traits, and competencies necessary to maintain a job. A list of 27 basic occupational survival skills was developed, involving the following areas: interpersonal relations and communications; personal characteristics; decision making and problem solving; job characteristics, health, and safety. A telephone survey instrument, utilizing these basic skills plus job attitude and demographic questions, was pilot-tested before interviewing 589 workers throughout Illinois. Responses were grouped into nine occupational classifications and analyzed. Chapters include: (1) Introduction, examining the problem, limitations, hypotheses, assumptions, and definitions; (2) Review of Related Literature; (3) Methodology, discussing study design, instrumentation, pilot test, study population, data collection, and analysis; (4) Discussion of Results, examining interviewing, sample characteristics, frequencies, means and discriminant analysis for survival skills, and frequencies for work satisfaction; and (5) Summary, Conclusions, and Recommendations. Nineteen tables and five figures supplement the text; survey instruments and supplemental tables are appended. It is recommended that studies be conducted to identify and compare a wider range of knowledges, traits, and competencies than was possible in the present study to promote meaningful job training based on work needs. (LH)

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WORKER PERCEPTIONS OF SKILLS NECESSARY FOR SURVIVAL IN THE WORLD OF WORK

BY

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THESIS

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WORKER PERCEPTIONS OF SKILLS NECESSARY FOR SURVIVAL IN THE WORLD OF WORK

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The present research study was conducted to identify occupational survival skills--the basic knowledges, traits and competencies necessary for an individual to possess in order to maintain a job. Occupational survival skills should permit workers not only to successfully maintain their chosen occupations, but also to move from occupation to occupation with a minimum of retraining.

A tentative listing of over 500 occupational survival skills was identified through the following procedures: an extensive review of related literature; interviews with a variety of workers; consultations with manpower personnel, research authorities, vocational and technical research and development personnel at the state level, vocational educators and others; and, input from numerous students, university faculty and staff and other workers. More than 300 persons, including a panel of education experts who validated the survey instrument, reduced this list of over 500 skills to 27 basic occupational survival skills. These skills appeared to be representative of the following areas: a) interpersonal relations and communications, b) personal characteristics, c) decision making and problem solving and d) job characteristics, health and safety.

A telephone survey instrument was developed with 41 items--the 27 occupational survival skill statements to be rated by respondents as to importance in keeping their jobs, 3 open-ended questions concerning respondents' attitudes toward their jobs and 11 questions relating to demographic data. A pilot test was conducted to a) refine the survey instrument, b) estimate the percentage of response and c) identify objectives for interviewer training sessions. Fifteen persons were trained to conduct the telephone survey; and, within a two-week period, 589 telephone interviews were completed.

The 589 workers interviewed were grouped according to occupations into the 9 occupational classifications used by the State of Illinois, Bureau of the Budget (an adaptation of the U.S. Bureau of the Census classification system). Frequencies and standard scores were obtained. Discriminant analysis was used in determining differences of the variables within and among the nine occupational classifications.

Each of the 27 occupational survival skills rated by respondents in each of the 9 occupational groups can be considered to have some degree of importance for occupational survival. Priority differences, however, were found in the types of survival skills needed by persons in specific occupational groups. The following skills appeared to be extremely important for occupational survival regardless of occupational classification: 1) being dependable, 2) giving an honest day's work, 3) knowing what is expected of you, 4) maintaining good health and 5) managing time and materials efficiently. Aside from these five extremely important skills, twelve additional skills were identified by the total sample (regardless of occupational classification) as being important for occupational survival: 1) getting along with people with a variety of personalities, 2) working as a team member, 3) understanding written information, 4) having basic writing skills, 5) knowing your own abilities, strengths and weaknesses, 6) being loyal to the organization for which you work, 7) making independent decisions, 8) using initiative and imagination, 9) locating information, materials or equipment, 10) working without close supervision, 11) working under tension or pressure and 12) adjusting to various work situations. The remaining ten skills were found to be characteristic of one or some combination of the nine occupational classifications.

White collar workers indicated neatness and cleanliness in appearance as well as speaking skills as especially important skills for maintaining a job. Blue collar workers considered a) following safety regulations, b) knowing how to use job materials, machines or tools and c) being punctual as extremely important skills for their occupational survival.

Managerial groups indicated that having some type of specialized training and organizing work activities of other people were the most important skills in keeping their jobs. Non-management persons, or subordinates, indicated that following instructions was their most important occupational survival skill.

Workers in the services occupational classification indicated that their most important survival skills were a) being neat and clean in appearance, b) having some type of specialized training and c) following safety regulations. The very small group of farmers and farm workers indicated that having basic math skills and knowing about the operating procedures of their businesses were their most important job maintenance skills.

Of the 589 total respondents in the study, most workers indicated that they kept their jobs because of salary, security or work satisfaction. No one primary reason was given for disliking their jobs. Interpersonal relations, however, was the reason cited most often by workers who did find an aspect of their jobs they disliked. The majority of respondents who had held previous jobs indicated that some important personal reason was the primary factor as to why they left their last jobs.

Based on the results of the present study, curriculum materials will be developed which will assist in preparing workers for successful job maintenance. The implications of job survival skill training may provide workers with more freedom of occupational mobility whereby they may obtain greater satisfaction and a higher sense of achievement from their jobs.

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

THE GRADUATE COLLEGE

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SHARON LUND O'NEIL

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NECESSARY FOR SURVIVAL IN THE WORLD OF WORK

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THE DEGREE OF DOCTOR OF PHILOSOPHY

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1976

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CHAPTER I

INTRODUCTION

IMPORTANCE OF THE PROBLEM

Today, individuals are faced with a variety of problems and decisions relating to their occupations. These problems and decisions are primarily due to the increasingly complex nature of the world of work. As social and technological changes continue to alter the present occupational structure, employment problems may become even more severe.

Contemporary workers may be better prepared to cope with the complexities of the total environment in which they live, however, if they understand the problems relating to the various aspects of occupational maintenance and mobility. The attention and support given to career education has focused on the need for better educational preparation for individuals to make informed choices regarding the work they do. Sidney Marland, former Commissioner of Education, noted the significance of survival skills as an important part of career education when he stated:

> Career education would provide the training students require for successful employment and it would give them the education they need to bring personal fulfillment into their lives. It would teach reading, writing, and arithmetic as the fundamental skills. It would at the same time stress the ability to think, decide, and judge--the "survival skills" (Marland, 1971, p. 7).

Marland has implied that the educational system has a responsibility for preparing individuals to cope with the complexities of surviving in the world of work.

Our present educational system, however, does not appear to adequately prepare students for living and working in society. For example, Pratzner (1972) has stated that we have a system which does not perform either of its duties well--the social maintenance role or the individual self-actualization function. Pierce (1973) has estimated that sixty percent of what is taught in school could profitably be discarded. The rationale for Pierce's estimate is that the school does not provide either job skills or "coping" skills that enable persons to lead satisfying, self-confident lives.

The vocational and technical education program is one example of an area of the educational system which is aimed primarily at preparing individuals with job skills. If students are unable to apply these vocational competencies as adults in the real world, possibly we may need to "transform our mode of education . . . to revolutionize and revivify this idea of vocation or occupation" (Bruner, 1973, p. 22).

Finding meaningful relationships between job preparation in schools and on-the-job work activities is essential if students are to make a smooth transition from school to work. In a current monograph on career education, "Conditions Calling for Educational Reform: An Analysis," published by the U.S. Department of Health, Education and Welfare, Edwin Herr (n.d.) stated:

> ...the validity of the assertion that too many students fail to see meaningful relations between what they are being asked to learn and what they do when they leave the educational system rests upon subjective grounds....
>
> In the absence of hard data, there is a significant amount of impressionistic data that schools in general are irrelevant, and thus lack meaning to many students, because they do not address student needs, the personal questions with which they are coping, or the reasons for learning what one is exposed to. Another body of research, however, would say that this kind of experiencing, while not now present in most schools, is

> necessary to the attainment of vocational maturity, achievement, and coming to terms with the self. As such the schools have an obligation to provide it (p. 16).

Educational preparation varies among occupations as well as among individuals within occupations. The worth of an occupation and the value of a worker cannot be judged only on the amount of educational preparation, but should be "more properly judged" by the occupation's contribution to society (Hoyt, Evans, Mackin and Mangum, 1974). Students should be receiving the education necessary to assist them in attaining their occupational goals and/or to cope in a vocational and social context (Campbell, 1968; Slocum and Bowles, 1967). Experiences may have to be provided in school for students to develop self-concepts appropriate to individual differences in relation to occupational needs (Super, 1953).

The task of scrutinizing the world of work and making career decisions may be dependent upon one's perception of self. Denues (1972) has suggested that self-understanding and fulfillment of an individual are important in the ways one makes choices. This reinforces the importance of problem solving and decision making in occupational selection and career maintenance. In reference to the importance of problem solving, Nelson (1974) stated:

> Problem solving is extremely important at the secondary level because it is during high school that students should have opportunities to analyze and evaluate knowledge of careers in relation to their own individual needs, abilities and interests. Selecting an occupation is basically a problem-solving situation, whether it be in the context of a tentative choice while still in school or an actual choice upon leaving school (p. 7).

To adequately prepare students for career selection and for survival in an occupation, essential skills for occupational selection and career maintenance should be identified. Materials could then be developed for teaching these career maintenance skills. The infusion of such materials into the educational curriculum could provide the types of experiences individuals need for successful occupational maintenance and mobility.

STATEMENT OF THE PROBLEM

Persons in the work force must be prepared to make various career changes during their lifetimes (Bolles, 1972). According to Venn (1971), four or five job changes may occur during one's work life. If this trend continues, the number of job changes persons will make during their working lives will increase.

By identifying and teaching the common skills necessary to maintain an occupation, students may be better able to meet the needs and demands of employers. Surviving in a career may require that an individual have a common core of skills to permit occupational changes with a minimum of readjustment and retraining. Possession of these skills would enable workers to have more freedom of job mobility in response to the changing needs of our highly technological society.

The opinions of workers can be helpful in determining the nature and content of skills necessary for occupational survival. Workers, however, have had little opportunity to offer input in identifying skills for job training programs. Paul Kimmel, Office of Manpower and Training, U.S. Department of Labor, has emphasized that research on work and the worker in the United States is in its very early stages. He has stated:

> ...job attitudes, their determinants and consequences are complex, and as yet relatively unanalyzed, phenomena. Few workers have the clear-cut goals of the social critic or the single (or double) motivational systems of the industrial psychologist. It is unlikely that worker attitudes will be

> predicted by a general theory dealing with abilities, background, or motivation in any more accurate manner than worker performance has been predicted on the basis of reported job satisfaction. In spite of its rather lengthy and extensive history, the study of job attitudes is really only at the threshold of scientific inquiry (Kimmel, 1973, p. 22).

Through the identification of common occupational survival skills, especially with input from workers themselves, educators could develop curriculum materials which would better prepare students for the world of work.

PURPOSE OF THE STUDY

Various research studies have attempted to determine aspects of occupational survival skills which appear necessary for individuals to keep pace with the constant changes occurring in the world of work. The primary focus of the present study was to ask workers about the importance of a variety of occupational survival skills--the common skills (basic knowledges, traits and competencies) most appropriate for them to successfully maintain their chosen occupations. Through the identification of common occupational survival skills needed by workers, and through the incorporation of topics pertaining to such skills into educational curricula, students could benefit from the teaching of skills necessary for maintenance of occupations in a highly technological and change-oriented society.

Spradley (1973) has stated that "the goal of career education is to enable every person to make informed choices as he develops his own career" (p. 10). One question which may be crucial to every student who is entering the labor market is: "What common skills are necessary to maintain occupations in a changing society in which one lives?" Answers to this question may be contingent for the moment, at least, upon the present study's identification and comparison of occupational survival skills in a variety of occupations.

LIMITATIONS

Limitations of the present study include:

1. The present study was limited to the general population of the State of Illinois.

2. Persons participating in the study were at least 18 years of age and, at the time of data collection, were either presently employed or had been employed within the past year.

3. Data collection was accomplished through telephone interviews; consequently, the study was bound by the limitations of this method of data collection.

4. The findings of the present study should not be used to make predictions about occupational survival skills in other geographical areas unless the physical, demographic and occupational cluster components are similar to those of the study.

HYPOTHESES

The following hypotheses were tested in the present study:

1. There are occupational survival skills which can be identified by workers that are important to the sampled occupations in all occupational classifications*.

2. There are occupational survival skills which can be identified by workers that are not as important to all occupational classifications as they are to the sampled occupations of one or more of the occupational classifications*.

---

*See DEFINITIONS, Occupational Classification System

ASSUMPTIONS

The assumptions that are pertinent to the present study are as follows:

1. There are skills which are necessary for maintenance and survival in all occupations.

2. Skills which are necessary for occupational maintenance and survival can be identified through a telephone survey of workers in Illinois.

3. The workers selected to identify occupational survival skills are excellent sources of information concerning the skills they need to maintain their chosen occupations.

DEFINITIONS

Maintaining an Occupation. The continuing in a job or career (Webster's New World Dictionary of the American Language, 1968).

Occupational Classification System. A method for categorizing into clusters all jobs in the world of work. In the present study, this system utilized the nine occupational cluster areas defined by the State of Illinois, Bureau of the Budget (1974). This classification system is an adaptation of the system developed over 40 years ago by Alba Edwards for the U.S. Government, Department of Commerce, Bureau of the Census (1960). These nine areas are:

1. Professional, Technical, Kindred
2. Managers, Officials, Proprietors
3. Sales Workers
4. Clerical Workers
5. Craftsmen, Foremen, Kindred
6. Operatives
7. Service Workers
8. Laborers, except Farm
9. Farmers and Farm Workers

Occupational Survival Skills. The basic knowledges, traits and competencies necessary for an individual to possess in order to maintain a job.

Panel of Experts. Resource persons with special knowledge or expertise who are considered specialists in occupational information and who were consulted for validating the survey instrument.

Work. The performance of activities designed to achieve objectives (Kroll, Dinklage, Lee, Morley and Wilson, 1970) and for which remuneration is provided. (Non-paid work was not included in the present study.)

Workers. Persons engaged in the performance of activities designed to achieve objectives (Kroll, et al., 1970) and who receive remuneration for such activities. (Non-paid workers were not included in the present study.)

Work (Labor) Force. All persons who desire to work for pay or profit (U.S. Government, Department of Commerce, Bureau of the Census, 1970).

World of Work. The environment where all occupations exist and provide the structure for our business and economic system in the United States.

CHAPTER II

REVIEW OF RELATED LITERATURE

Survival in the world of work is a primary concern of most individuals who live in a highly technological society. As various changes occur in technology, changes are brought about in occupations; and as occupations become altered, individuals need to adapt to new work situations. The Advisory Centre for Education in England has suggested that persons in the work force must be prepared to make several career changes during their lifetimes (Bolles, 1972).

Each career change may require individuals to face more complex job requirements. "Previously most jobs could be done by a wide range of people, but the greater complexity of jobs today limits the opportunity of transferring personnel from one job to another without retraining" (Atkinson, 1973, p. 125). To permit freedom of career changes with a minimum of readjustment and retraining between occupations, individuals need more than just very specific job skills.

Determinants of survival in the world of work have been researched by a variety of persons. The literature presented in this chapter identifies research which relates to various elements and activities pertaining to occupational maintenance. From the literature, it appears very desirable that workers have a common core of skills which will permit them the freedom of occupational mobility--a characteristic which is becoming more important in our changing society.

OUR NATION--A TECHNOLOGICAL SOCIETY

Transition from an agrarian to an industrial to a technological society suggests that "such drastic changes require different attitudes toward the meaning of work" (Feinberg, 1974, p. 113). The types of work as well as the skills required by workers also are reflected in this transition. Dunphy, Austin and McEneaney (1973) suggest that the accelerated changes in our technological society will increase the frequency with which individuals change jobs.

Today, job openings exist for occupations which were not in existence a decade ago. As new jobs are created, others become obsolete (Terkel, 1974) and are no longer needed. The accelerated rate of change in our society has resulted in fewer workers being able to look forward "to a lifetime career in which the knowledge and skills which qualify them for a specific occupation in their youths will serve throughout their working life" (Adams and Reagan, 1972, p. 160). Adams and Reagan substantiate their statement by indicating that at the turn of the century, craftsmen in the United States represented a total of twenty percent of the six occupational categories into which they were classified. In 1967, however, craftsmen comprised only five percent of the same classifications.

In a 1974 report, the United States Department of Labor, Bureau of Labor Statistics (1974), estimated that sixty million new job openings would be created by 1985. It also was suggested that in the vast majority of these occupations, a four-year college degree would not be required. In preparing for the future, then, most of society must be willing to accept and adapt to occupational change.

SURVIVING IN THE WORLD OF WORK

Occupational survival will depend upon how well individuals are prepared for their career futures. Lofquist and Dawis (1969) have stated:

> In order to survive in an environment the individual must achieve some degree of correspondence...."Work represents a major environment to which most individuals must relate."... In the case of work, then, "correspondence can be described in terms of the individual fulfilling the requirements of the work environment, and the work environment fulfilling the requirements of the individual" (p. 45).

Writesman Long (1974) has emphasized that the changing employment future will require employees to retrain, upgrade and learn new abilities. He further asserts that flexibility must be developed and negative attitudes must be eliminated.

To be flexible, learning must take place continuously. The importance of lifelong learning must be stressed, says Niemi (1972), in order to cope with continual change and to insure the continuing development of the individual. In this process of learning to cope with change as well as in continuing one's development, personal assessments need to be carried out at various stages of one's career (Dubin, 1973). Knowing the common skills required by an occupation would enable one to identify with that occupation. Consequently, the individual would be better able to adapt to the technological changes of the occupation.

> No individual can assume a stable position in society except in relationship to the work roles which he performs. His role not only becomes the basis for his establishing meaning in his life experiences, but also conditions his social purposes. His values, political interests, attitudes toward other people and groups, styles for rearing his children and participation in a variety of both social and avocational activities are determined in largest measure by the nature of his vocation (Goldhammer and Taylor, 1972, p. 284).

Although a vocation may contribute significantly to the development of an individual's values and interests, vocational choices probably result from values and interests that are developed in an individual considerably earlier than at the time career choices are made.

Decision Making and Problem Solving

Decision making and problem solving may form a cluster of basic survival skills for work as well as for everyday life. As individuals make simple choices, their decision-making skills become refined and more useful in making more complex choices. Adams (1971) substantiates this idea in a study he conducted. He found that students who participated in decision making in a game of life-career simulation were the more "definitive thinking models."

The importance of decision-making skills also has been emphasized by Voloudakis (1972). She has stated that business is seeking "individuals who are able to think for themselves and make decisions regarding their own work" (p. 9). Problem solving, as a basic survival skill, may be important in the sense of surviving in one's occupation as well as in making decisions for continuous career development.

> A major task that will face educational and guidance services is that of helping young people to fashion a life for themselves that does not crucially depend upon vocational commitments in the narrow occupational sense, but which embraces life objectives and possibilities of self-fulfillment that are not occupational....
>
> An important task for vocational guidance in the future will be that of helping young people to achieve a healthy balance in their personal identities between work and non-work goals and identifications, so that they may clearly understand that while "occupational" refers to those activities they are paid to do, "vocational" refers to the pattern and purposes of their whole life (Daws, 1970, p. 78).

Effective decision-making training should provide youth with an awareness that they are the decision makers for their life goals (McBrien, 1973). In a study conducted in Canada with 633 employees, Grise (1974) found that goal directed individuals do have higher job performance and potential. The early development of goals and values may be an important factor in increasing job performance and potential. "Values represent what a person considers important in life" (Fraenkel, 1973, p. 49). If values and goals are developed early, individuals may be better oriented to want to become contributing members of society. Being useful to society takes into account the promotion of two concepts: a) all work is equally important and b) all work has dignity. Consequently, teachers must believe each student has worth and dignity no matter what career the student wishes to pursue (Rowe, 1973).

Interpersonal Relations and Communications

In 1974, Family Weekly made a request for readers to send in their complaints about their employers (Redford, 1975). The complaint most frequently cited was the boss's lack of ability to display good human relations. Since it appears that employers as well as employees have experienced similar problems, adaptability in interpersonal communications may be another cluster of important skills for individuals to possess. In a study conducted with training agents, Hunt (1966) found that effectiveness of training agents depends upon being able to shift from one environment to another after the agent has selected from a wide variety of environments. In a later study (1970) he stated, "adaptability in interpersonal communication was considered as one component in training agent effectiveness" (p. 327).

Carter (1975) has pointed out that the interrelationships students experience in school are the same type of interrelationships they will find at work. "Work is a socialization process," says Tiffany (1969), "where the individual's interpersonal competence significantly determines his success on a job" (p. 142). Dumphy et al. (1973) have suggested that the vast majority of people do not lose their jobs because of lack of technical ability. The authors further assert that failure of jobs is mainly due to not being able to relate well with others.

Creager and Harding (1958), Grant (1955) and Roach (1956) have studied various occupations for determining factors of vocational success. Their investigations, like those of many others (Bolanovich, 1946; McQuitty, Wrigley and Gaier, 1954; Ryans, 1952; etc.), have suggested basic survival skills for vocational success include aspects of interpersonal relations. Gustafson (1971) has summarized many researchers' views concerning the importance of interpersonal relations with the following statement: "Skill in interpersonal relations is recognized by many professions as being critical to competent performance but few attempts have been made to train people in these skills" (p. 35).

Personal Characteristics

An area which is very closely related to interpersonal relations is that of personal characteristics. In reference to what surveys of employment records indicate, Crites (1969) has indicated that "personality problems are the most common cause of discharge from employment" (p. 353).

The importance of developing good personal characteristics and attributes has been emphasized by Perrone (1970). In his investigations on predicting job entry, satisfaction and performance, he found the following attributes to be important: dependability, refinement, leadership, hard working, personal appearance and grooming, ability to get along with others and thoroughness. Other researchers have indicated workers should possess such characteristics as: loyalty, knowing what the employer expects (Marks, 1970), initiative and conscientiousness (Kaufman, Schaefer, Lewis, Stevens and House, 1967).

Chapman (1943) has indicated that initiative, dependability, cooperativeness and leadership abilities are qualities that frequently lead to promotion. He believes that maintaining a job is centered around having a good personality. Rice (1961) has stated, "most employers consider personality the greatest single factor in the success or failure of an employee" (p. 6).

The importance of developing good personal characteristics gives meaning to job satisfaction--a factor which appears to hold a multitude of problems for society. In a study concerning job factor importance for job satisfactions and dissatisfactions, Starcevich (1972) found that job content factors are important for feelings of both job satisfaction and job dissatisfaction. This coincides with the work of Friedlander (1964) who has researched job characteristics as satisfiers and dissatisfiers.

Wernimont, Toren and Kapell (1970) conducted an investigation to determine what differences scientists and technicians saw in various job factors as they affect job effort and job satisfaction. A total of 944 responses was obtained from a large midwestern business organization. These technical employees ranked the items of personal accomplishment, praise for good work, getting along with co-workers, company location and receiving credit for ideas, as having a great impact on personal satisfaction. Other items found by Wernimont et al. as important factors for their effect on motivation or job effort included: knowing what is expected of one, having a capable supervisor, having challenging work and responsibility, being kept informed and participating in decisions.

Spaulding and Scott (1971) have suggested that employees be polled to obtain their reasons for the joining and staying process within organizations. Using a modification of the model of Herzberg's study, they hypothesized that "external factors of job satisfaction are joining motivators, while internal factors are staying motivators. . . . While he [Herzberg] asked about emotional highs and lows," the proposed Spaulding and Scott study would focus on obtaining information concerning "joining and staying" (p. 9).

A combination of work and play, according to Day (1971), should be considered as complementary components of all activities--e.g., a salesman obtains satisfaction from understanding and manipulating people (play) and pay; a painter obtains satisfaction from the painting and the pay. Day goes on to say that "work personality" must be developed in the school environment so that people are willing to accept restrictions. The author further asserts that a successful graduate from school is one who has learned how to work and is "ready to take on a job."

How does one become ready to take on a job? One way would be to give students the "opportunity to examine the role that the individual plays in the economy and to learn to cope with problems of our constantly changing world" (Church, LaBarre and Scrittorale, 1973, p. 47).

Coping, as a survival skill, becomes even more important when one considers the possibility that educators may not be teaching students to develop this skill. In a publication of the State of Illinois, Office of the Superintendent of Public Instruction (1972), it is emphasized that there is a need for correcting the "deficiencies in 'survival skills' and functional knowledge" (pp. 296-297).

Morrison (1971) poses the question, "What would a person have to know or be able to do if he is to be vocationally satisfied and competent?" (p. 2). In answering this question he suggests that first, the individual must be capable of career decision making--a lifelong process. Secondly, the individual must be able to develop or "forge" a career. Thirdly, an individual must be capable of performing the tasks required by an occupation. This sums up to the fact that individuals need a multiplicity of capabilities to obtain vocational satisfaction and competence. Possibly, then, "the ultimate ability is the ability to use other abilities effectively" (Dunphy et al., 1973, p. 20).

Vocational satisfaction and competence may be very dependent upon how one perceives work. Research has indicated that many employment failures are not due to deficiencies in skills, but to the attitudes of workers toward employment (Rothbart, 1973). Good attitudes toward work, says Reubens (1974), may be more important than traditional vocational skills, although broad, general training in vocational skills is much better than specific, narrow job skills training.

Job Characteristics, Health and Safety

Basic job performance and efficiency as well as basic job knowledge and competency should not be overlooked in the identification of occupational survival skills. Job skills requiring technical training have been a strong part of vocational and technical training programs. In a variety of occupations investigated by Ewart, Seashore and Tiffin (1941); Turner (1960); Wrigley, Cherry, Lee and McQuitty (1957); and others, job skills were found to be important factors for worker survival.

Research findings can be obtained on practically every aspect which pertains to job characteristics. Many job characteristics, inherent in job specifications, require workers to possess mathematical abilities (Halsey, 1951; Loveless and Egan, 1968); communicative, computational and social skills (Gordon, Sferra and Wright, 1974); and English fundamentals (Radloff, 1973).

Health and safety is another important area in determining occupational survival skills. Krejcie (1972) has indicated that developing safety attitudes while still in school is important for worker success. His rationale for this statement is that many of the nation's youth will become industrial and technical workers. Consequently, their past experiences in safety training will be valuable in dealing with problems arising in the work situation.

The Occupational Safety and Health Act of 1970 has contributed to employee as well as employer health and safety awareness (The President's Report on Occupational Safety and Health, 1972). Myers (1973), in referring to the acceptance of the "physical fitness boom," has stated: "Among the factors affecting this change are large corporations which have made the sensible correlation between physical fitness and employee health" (p. 58).

A study by Albert Maslow (1970) was conducted to investigate job factors, attitudes and preferences affecting the selective advancement and turnover of men and women in Federal careers. Approximately 11,000 men and 15,000 women were asked to rank 14 qualities of the ideal job. Three qualities were found to be most important--intrinsic nature of the work itself, personal work accomplishments and salary. Four qualities were given as least important in the ideal job--image of the job as others view it, organization rules and regulations, environmental conditions and agency management. In regard to the same 14 qualities concerning their present jobs, 18 percent of the men and 25 percent of the women were dissatisfied with all three of the following qualities: environmental conditions, training opportunities and agency management. They were, however, satisfied with the intrinsic nature of the work itself and with their own personal work accomplishments. Maslow found that the greatest complaints concerned having to spend too much time on clerical work, having too little chance for creativeness and not having enough challenging work.

Robey (1973) found that workers who were given challenging work were more satisfied with their jobs than when they were doing very simple, routine work. Challenging work also provided motivation for higher worker production.

The challenge of work is closely related to meaningful work. Terkel (1974), in quoting Ralph Helstein, president emeritus of the United Packinghouse Workers of America, pointed out: "Once we accept the concept of work as something meaningful--not just as the source of a buck--you don't have to worry about finding enough jobs." Obvisouly, says Terkel, "our imaginations have . . . not yet been challenged" (p. xxviii).

MEETING NEEDS OF STUDENTS AND SOCIETY

Various research studies have pointed out the need for students to acquire a variety of skills which will enable them to survive in their chosen occupations. This final section of the literature review has been included to relate some of the research studies, projects and programs which have been designed to meet the needs of students and society.

Dale Parnell, the former Superintendent of Public Instruction, Oregon State Department of Education, has recommended that high school programs be based on the individual needs of the student. In one of his articles, "'Survival Competencies'" New Oregon Graduation Requirements," he discussed three major areas of public school responsibility in terms of developing minimum survival-level competencies which have been established in the State of Oregon. In one of the areas, Personal Development Education, emphasis is placed on the importance of developing basic skills as well as the skills necessary "to remain a lifelong learner" (p. 391).

In a second area, Social Responsibility Education, the emphasis is placed on "the ability to cope responsibly." This involves coping in the various levels of government, in "personal interactions with the environment, . . . on the streets and highways, . . . and as a consumer of goods and services" (p. 392).

A third area of public responsibility for developing minimum survival-level competencies is defined as Career Development Education. In this area, stress is placed on the need for students to develop entry level skills for their chosen careers and good work habits and attitudes. It is further stated that Career Development Education includes the "ability to maintain good interpersonal relationships . . . and . . . the ability to make appropriate career decisions" (p. 392)--necessities for career survival (Parnell, 1974).

Two studies directed by Joyce Felstehausen were conducted with high school graduates in the State of Illinois. In the first study, "Followup Report on Illinois 'Class of '71' Occupational Program Alumni" (1973), she found that alumni respondents felt their educational preparation was lacking in a number of areas. Some of the most frequently mentioned areas included: a) interaction with the public to be served, b) ability to handle new or unpleasant job situations and c) talking to the "boss" about job problems. Respondents also felt that "more emphasis should be placed on the common job skills and related basic knowledge needed by all workers" (p. xvii). Recommendations of the study indicated that:

> Occupational instructional programs need to be developed from a careful and systematic analysis of the job tasks performed on each level of an occupational cluster....
>
> Emphasis should be placed on identifying interaction skills needed by workers in the occupational clusters and instructional methods for teaching these skills should be devised, tested and implemented (p. xviii).
>
> The willingness of employer/supervisors to participate in an evaluative role for the improvement of occupational education should be built on by local school personnel throughout Illinois. The involvement of these employment representatives who are knowledgeable about the needs of a technical society should be sought. Their advice and counsel on worker qualifications, training needs, job placement and program evaluation could have great impact on the improvement of those programs that utilize their competence (p. xix).

The second study, "Followup Report on Illinois 'Class of '73' Occupational Program Alumni" (1974), reported that of the 87 percent who responded, only 28 percent were found in jobs that were classified as related to specific occupational training taken in high school. "Employers/supervisors felt that three most important job skills or personal qualities for entry level workers to possess were dependability, accuracy and the ability to get along with others" (p. 3).

A project, under the auspices of the Human Resources Research Organization (HumRRO), was conducted to develop a program for teaching decision-making skills to adults (Suchman, 1975). The program was designed to be used in Adult Basic Education (ABE) where participants have reached less than a ninth grade educational level. In this program, adults are able to develop their decision-making skills by making decisions, based on information given on data cards, for such real life situations as buying a house or car. The decision-making model contains four areas of problem solving: want, resources, cost and benefits.

Other efforts have been made to help solve the problems facing students today. Business and industry, for example, feel the need for better student, and consequently worker, preparation. One report has suggested: Business must have an active part in determining the "form and practice of other social institutions (such as schools)" (18 Month Report: Educational Requirements for Industrial Democracy, 1975, p. 1). The American Telephone and Telegraph Company (1970) has instigated a program to help students discover how their schooling relates to useful careers and satisfying work. One of the objectives of the program is to bridge the communications gap between students and businesses. Dr. F. Melvyn Lawson, retired Sacramento school superintendent, endorses the American Telephone and Telegraph Company's "Bridging the Gap" program by stating: "The project makes it strikingly evident why good basic training in reading, arithmetic and verbal expression is the key to success on the job" (p. 3).

A program designed to meet the challenge of creating better employee attitudes has been developed by Science Research Associates (Chapman, 1972). Along with other audio-visual materials, they have produced a book for employees called, Your Attitude is Showing. Many companies have had success in using this book as well as other materials of the program. Through everyday work situations presented in the program, employees are able to better understand human relations.

Improvement of employee relations also was the aim of a project conducted by Spachman (1974) in Decatur, Illinois. The project involved a number of training sessions for division heads and supervisors to improve their skills in employee relations and to reduce disciplinary problems and grievances.

A study, under the auspices of the University of Vermont, Agricultural Experiment Station, was conducted in 1974-75 to establish a woodworking craftsman-entrepreneur training program model for adults (Purvis, 1975). This project has identified and incorporated into the model such characteristics as self-concepts, interests, "job satisfaction and satisfactoriness" and personality characteristics.

A similar project, supported by the U.S. Civil Service Commission, was conducted to develop a training program for supervisors (Nakano, 1974). The training program course developed by the Industrial Relations Center, University of Hawaii, was designed to help supervisors deal with employees under a negotiated contract. Both this project and the Vermont study were supported by the Federal government. Consequently, it appears that the Federal government also feels the need for job survival skills training.

Levein (1975) has researched the "Educational Requirements for Industrial Democracy" in the United States and selected foreign countries. The study involved examining the correspondence between "the educational requirements of industrial organization and the social skills and attitudes produced by schools" (p. 1). The need for identifying and establishing relationships between business and the school is emphasized in this study. "The connection between changing work requirements and forms of school productivity attitudes toward authority, . . . and decision making skills, suggests an evolving relationship between education and the world of work" (p. 1).

A design for an instructional programs system to be produced in 1978 is the purpose of a project being conducted at the Ohio State University (Findlay, 1974). The development of a set of procedures for use in instructional programs will be based on the identification of satisfactory job performance competencies.

"Kingscity," a simulation model, was designed to solve the problem of alienation of workers on the assembly line (Beaver and Jandt, 1973). The "Kingscity" model was patterned after the General Motors Plant at Lordstown, Ohio, and was used in a basic interpersonal communications course at the State University College at Brockport, New York. This model has been considered useful in studying worker alienation. Consequently, simulation models may be desirable not only in teaching occupational survival skills (as many vocational and technical education programs are doing), but in studying worker problem areas.

The Singer Corporation (1973), in response to a need for an adequate method "to provide individuals with personal and interpersonal employment skills" (p. 1), has produced audio-visual materials for teaching survival skills. This "Job Survival Skills" program has been tested and revised in a number of programs operated by Singer Education Systems including correctional programs, vocational rehabilitation programs, Job Corps Centers, Manpower Training Centers and public schools. The content has been proven relevant and the teaching techniques interesting and effective. In support of this and similar programs, the manual states, "not only does a potential job holder need to know how to face a TV, or how to type, or how to run a drill press--he must also know where to look for a job, how to satisfy his supervisor, and how to get along with his co-workers" (p. 1).

"In our society, work determines the way of life" (Menninger, 1964, p. xiii). Adjusting to work situations may require workers to acquire a variety of knowledges, traits and competencies. Since students are the future workers of society, career preparation should focus on the elements that will provide them with the skills needed for working in society--job maintenance and mobility skills.

The need for job maintenance and mobility training is supported by the purpose of a study conducted in North Dakota in the early seventies (Murphy, 1972). Objectives of this study were to identify common content areas of vocational education programs. In a summary of the project, Murphy has stated:

> Students need a broader range of vocational skills than is presently being offered. More effective vocational training is needed. One way the needs of students could be met is by identifying content that is common to all vocational education areas and emphasizing these commonalities in the vocational training of youth. In schools where programs in vocational services are not available the commonalities or concepts that cut across vocational service areas could be stressed by any vocational teacher in the school (p. 1).

The needs of the world today point to the importance of workers possessing some common skills. Unfortunately, today's youth are confused by the conflicting views of the world of work (Kazanas, Hannah and Gregor, 1975). Sufficient information about the present and future labor market is necessary before we can correct the situation of the "drop-outs," "cop-outs" and even the graduates who are coming out of school "with no skills at all" (Thal-Larsen, 1971). ". . . we must first discern the changes anticipated in the workplace, or in the organization of production, before we can suggest the types of educational reforms that would prove viable under the altered circumstances" (18 Month Report: Educational Requirements for Industrial Democracy, 1975, p. 10).

The workplace, as John Dewey viewed it, is a place where the practical and the theoretical components of education meet (Sweeney, 1973). Thus, the worker may be the primary source for identifying occupational survival skills--skills which have implications for both job maintenance and job mobility.

The literature presented in this chapter has implied that workers do, indeed, need a variety of common skills to live and work in society. By identifying occupational survival skills, materials can be developed for teaching the components of occupational survival to future workers. With the integration of occupational survival skills into educational preparation, students could be better prepared to meet the demands of the world of work.

CHAPTER III

METHODOLOGY

DESIGN OF THE STUDY

The present study, which was exploratory in nature, utilized a descriptive research design. This investigation involved the gathering of data pertaining to the identification of occupational survival skills. McGrath, Jelinek and Wochner (1963) suggest that descriptive research can be meaningful and helpful in diagnosing a specific situation or in proposing a new and better program.

Descriptive studies are needed before most types of problems can be fully analyzed. Implementing different research approaches, such as combining descriptive research and action research, is important to give organized, investigative activity for the enhancement of curriculum improvement (McGrath, Jelinek and Wochner, 1963). Data which can be used for curriculum improvement may be an important outgrowth of the present study.

The independent variables included in the present study were the geographical region to be surveyed and the occupational cluster classifications. The occupational survival skills which were rated by workers were viewed as dependent variables.

Other variables including age, sex and educational level of the respondents were included to describe the characteristics of the sample population. Characteristics of the businesses and organizations with which workers were associated were explored to provide additional information about workers and their working environments.

INSTRUMENTATION

Identification of Occupational Survival Skills

The development of a usable survey instrument was accomplished through a variety of procedures. The selection of occupational survival skill items began by conducting an extensive review of library literature. This review included a library search of materials such as dissertations, theses, books, periodicals, testing and measurement media, Educational Research and Information Center (ERIC) documents and other multi-media. In addition to an ERIC search run by Northern Illinois University, DeKalb, Illinois; an institution-industry search was made through the Media and Resource Center, Illinois Office of Education, Springfield, Illinois. Smithsonian Science Information Exchange, Inc., Washington, D.C., also made a search of current research projects registered with them, but not yet in published form.

Discussions with persons who were involved in various areas of worker preparation and services were helpful in developing additional items. Some of the persons consulted were employed in the following areas: state and private employment agencies, survey research, speech communications and administration, labor and industrial relations, personnel services, personnel training services, English writing clinic, sociology and social relations, social work, psychology and industrial psychology.

In addition, consultations were made with manpower personnel, employment and personnel directors, research authorities, vocational and technical research and development personnel at the state level and other vocational and technical personnel involved in similar projects. Administrators (both business and education), persons involved in the development of career education curricula and teachers participating in these programs also were consulted.

Interviews with workers provided a further source of input for the selection of occupational survival skill items. Twenty-seven personal interviews were conducted with workers representing occupations in all of the nine occupational classifications used by the State of Illinois, Bureau of the Budget (See Chapter 1, DEFINITIONS). Very broad open-ended questions were used to discover what workers felt were basic survival skills for their specific occupations. This information was helpful in both identifying items for the survey instrument and determining vocabulary that would be best suited for a general population survey.

Over 500 items were obtained through the review of related literature, consultations and interviews. These items were classified into a scheme which the researcher chose to best represent the occupational survival skill items. This scheme utilized four basic categories:

a) interpersonal relations and communications,

b) personal characteristics,

c) decision making and problem solving and

d) job characteristics, health and safety.

Although many items appeared to be "suited" to more than one of these categories, a judgment was made by the researcher as to "best fit" for each of the items. Basically, this was done to refine the survey instrument by reducing the very large list of tentative occupational survival skill items.

Selection of Occupational Survival Skill Items

Reduction of the list of occupational survival skill items began by combining and grouping items so that similar descriptors appeared as only one item. This list of approximately 150 multi-dimensional items was submitted to over 300 persons. They included a wide range of university faculty, staff and students; several other groups of students (most of whom were presently employed and all of whom had held either part- or full-time employment in the past); and a number of other workers.

A Panel of Experts, chosen by the researcher, was among those asked to respond to the 150 items. Five of the Panel members were persons in the vocational education areas of agriculture, business, health, home economics and industrial education. These five educators were selected because of their expert knowledge in the types of common skills expected for maintenance of occupations in their special areas.

Three additional members of the Panel of Experts included persons in educational psychology and research, educational statistics and career education. The expertise of these educators was essential for additional input to supplement and balance the input from vocational areas. A common concern of each of the eight members of the Panel of Experts was the educational needs of students in preparing them as future workers in society.

Individually, these 300 plus persons reworked the 150 items to their best judgment. No special evaluation form was used to rate the items. Most persons checked (✓) the items which they felt were necessary for maintaining a job. Some persons rated the items as to their opinions of item importance for occupational survival. Many persons combined or reworked items, and a few new items were added.

From the suggestions and ratings of these persons, the researcher developed another list of approximately 75 items. These 75 items were selected because they received the highest frequencies and the highest ratings by the evaluators.

To reduce the 75-item list to a more manageable size, the list was submitted again to the eight members of the Panel of Experts. This time the Panel was asked to select no more than 40 items they felt were important for workers to possess for successful job maintenance. One week later, the Panel was asked to make a second "round" with the 75-item list. Like the previous week, they were asked to select 40 or less items which were most important for occupational survival. When the Panel's first and second responses were compared and tallied, there were approximately 45 items which were most frequently checked. (A phi coefficient was calculated as a measure of test-retest reliability of the responses to the 75-item list for each member of the Panel of Experts. The range of the phi coefficients was between .41 and .63.) Only the items most frequently checked were included in a new list to be submitted to the Panel for further reduction of items.

Six additional rounds were made with the Panel of Experts. Each time the Panel was instructed to make any changes they desired in the items. Some suggestions for changes, given in instructions by the researcher, included additions and deletions for clarity, redundancy and ambiguity. On the final round, 25 items remained as most frequently checked items.

These 25 items were reviewed by the researcher and a staff of five persons working on similar projects relating to occupational survival skills. Each skill was discussed in detail by the research staff on three different occasions. Only a few changes in wording were made, and two additional items were added. There were no changes made in the list of 27 occupational survival skill items when it was returned for the final time to the Panel of Experts. The 27 occupational survival skill items included in the survey instrument were:

1) to be punctual
2) to be dependable
3) to get along with people with a variety of personalities
4) to work as a team member
5) to organize work activities of other people
6) to understand written information
7) to have basic writing skills
8) to have basic speaking skills
9) to be neat and clean in appearance
10) to maintain good health
11) to know your own abilities, strengths and weaknesses
12) to give an honest day's work
13) to be loyal to the organization for which you work
14) to make independent decisions
15) to use initiative and imagination
16) to know what is expected of you
17) to have basic arithmetic skills
18) to know how to use job materials, machines or tools
19) to locate information, materials or equipment
20) to have some type of specialized training
21) to have a basic knowledge of your organization's operating procedures
22) to follow instructions
23) to work without close supervision
24) to work under tension or pressure
25) to adjust to various work situations
26) to manage time and materials efficiently
27) to follow safety regulations

Selection of Demographic Data

During the initial research stages for occupational survival skill items, demographic information also was identified. With the assistance of many of the same persons heretofore mentioned and experts in questionnaire development from the Survey Research Laboratory (SRL), University of Illinois, Urbana-Champaign, many demographic items were considered for inclusion in the survey instrument.

A total of 11 questions were selected to collect information about the respondents and their jobs. The 11 demographic items included in the survey instrument were:

1) county where respondent resided
2) employment status (if unemployed, how long)
3) occupation

4) average hours worked weekly
5) self-employed
6) length of time worked at present business or organization
7) number of employees in business or organization
8) number of persons supervised
9) highest level of education completed
10) age
11) sex

Development of a Telephone Survey Instrument

The review of library literature, especially test and measurement scales, at the outset of the present study was helpful in developing a survey instrument. The survey instrument, in the form of a questionnaire, was developed for use as a telephone interview.

Selection of the telephone interview method of data collection resulted from consultations with various personnel from the SRL. Four factors were considered basic to the selection of this method: a) even with two or three follow-up letters, only a 10 to 20 percent response rate could be expected from a mail survey; b) by increasing the sample size to correct for lack of response in a mail survey, cost differentials for completed mail instruments would be nearly the same as for completed telephone interviews; c) the total period of data collection by mail or personal interviews could be shortened by 50 percent or more if the telephone interviewing method were used; and d) a larger cross section of the general population could be captured by the telephone interviewing method than may be obtained by some other methods of data collection.

Tuckman (1972) has stated, "Certain information cannot be obtained any way other than by asking the person, and, even when an alternative is available, the 'asking' route may be the most efficient" (p. 174). This method of securing information appeared to be the most appropriate way for gathering opinions about occupational survival skills from a large number of respondents. The desirability of gathering opinions also has been noted by Hillway (1956):

> There are times when opinion may be the best available evidence. In such cases, care is exercised to make sure that the opinion offered is qualified and authoritative. Ordinarily, this means the opinion of one who is an expert with regard to the matter under consideration (p. 75).

Good and Scates (1954) have stated:

> Some types of questionnaires go beyond statistical data and factual material into the area of attitudes and hidden motivations. If opinion is recognized as such and the results are carefully interpreted, this is legitimate field of investigation for the questionnaire, by way of securing a cross section of thought or attitude (p. 613).

A telephone interview format was written with the assistance of the SRL questionnaire development staff. Staff from Illinois Bell Telephone Company, Champaign, Illinois, offered additional suggestions in refining the format. At various stages of development, the telephone format was tested on workers who were known by the researcher. Through the suggestions of all these persons, revisions were made which resulted in a suitable introductory format.

The introductory format included a question identifying the respondent's employment status and three questions designed to identify the respondent's occupation. Immediately following the identification of the respondent's occupation were the 27 occupational survival skill items. Each of the 27 occupational survival skill statements was designed to be preceded by the statement: "In keeping your job, how important is (was) it for you . . . ." This statement was read by interviewers at spaced intervals during questioning about the 27 occupational survival skill items.

Using a Likert-type scale, the format for each of the 27 occupational survival skill items required a respondent to answer in one of five ways--

VERY IMPORTANT (4), IMPORTANT (3), SOMEWHAT IMPORTANT (2), NOT IMPORTANT (1), or (if the item did not apply to the respondent's job) DOES NOT APPLY (0). (The numbers were not read by the interviewers.)

Eight demographic questions followed the 27 occupational survival skill statements. As in the 27 skill statements, the format for these questions required the interviewer to check an appropriate box based on the respondent's answer. Response categories were listed on the survey instrument for the eight questions, but were to be read only if the respondent needed assistance in formulating a categorical answer.

Three additional items concerning worker satisfaction were included within the demographic question section. These questions, of a strictly open-ended nature, were added to the telephone interview format by the researcher for the purpose of letting respondents "air their views" concerning their jobs as well as giving variety to the survey instrument. Although categories for these three items were given on the survey instrument form, the format called for the interviewer not to read the categories but to write out the respondent's answer. These three items included:

1) what is (was) the main reason for keeping your present (last) job
2) what is (was) the one thing you dislike(d) most about your present (last) job
3) what was the main reason for leaving your last job

The completed telephone survey instrument contained the following 41 items: a) the 27 occupational survival skill statements to be rated by respondents as to importance in keeping their jobs, b) 3 open-ended questions concerning respondents' attitudes toward their jobs and c) 11 items relating to demographic data (See APPENDICES A and B, SURVEY INSTRUMENT).

PILOT TEST

A pilot test was conducted to determine the clarity and completeness of each statement in the survey instrument--a method suggested by Good and Scates (1954). In addition to refining the survey instrument, the pilot test was run to estimate the percentage of completed instruments and to identify objectives for the telephone interviewer training sessions.

For the pilot test, random telephone numbers were selected from Chicago, Champaign, Bloomington and Evansville, Illinois, telephone directories. The initial calls were made in the presence of an Illinois Bell Telephone Company representative. Several other calls were tape recorded. These activities were helpful in analyzing problem areas to be encountered by the telephone interviewers and in making several changes in the interview format.

It was determined that two interview forms would be necessary--one for persons presently employed ("E") and one for persons who had been unemployed for less than one year ("U"). Forms were identical except for verb tense (See APPENDICES A and B, SURVEY INSTRUMENT).

Forty-five telephone interviews were completed during the pilot test. When each interview was completed, the researcher asked the respondent for comments. These comments, along with notes made of problem areas, resulted in revising the rating scale of the occupational survival skill items. This was done after the first 15 interviews. The remaining 30 interviews were conducted using the adopted rating scale of VERY IMPORTANT (4), IMPORTANT (3), SOMEWHAT IMPORTANT (2), NOT IMPORTANT (1) and DOES NOT APPLY (0). Persons appeared to be able to respond more naturally to this scale.

It was found that of the persons who did not complete the interview during the pilot test, many were either retired or had been unemployed over one year. This information was included in the coding of the introductory interviewer format as Rtr (retired) and Une (unemployed). Other codings included: Int (interview), Ref (refusal), Bsy (busy), NoA (no answer) and InN (incorrect number). This information was used for classification purposes. Each interview in the pilot test lasted on the average of eight to ten minutes.

STUDY POPULATION

Using random procedures, the study population was taken from the general population of the State of Illinois. Methods for selecting the study population were followed with advisement of the SRL sampling experts and of a statistician. Population figures by county from 1970 were used for selecting a sample (State of Illinois, Bureau of the Budget, 1973). Because of their accuracy, 1970 figures were preferred over population projections.

Of the 102 counties in the State of Illinois, it was determined by the SRL staff that 20 counties would be representative of the State. Necessary calculations were made to identify the "certainty" counties from the 102 counties before making further selections. "Certainty" counties were determined by dividing the total population of the State (11,137,630) by the number of counties desired (20). Every county with a population equal to or more than the quotient (556,881) was considered a "certainty" county and was included as a county from which the study population was selected.

Cook was the only county (5,504,617) which met this minimum on the first round. By subtracting Cook County's population from the total State population and dividing by 19 (the number of counties remaining to be selected) a new quotient was determined for making another round of "certainty" county selections. This process was continued until additional counties could no longer be selected because of population limitations. Since four counties (Cook, DuPage, Lake and St. Clair) were "certainty" counties, the remaining State population (4,470,153) was divided by 16 to determine interval selection of the remaining 16 counties needed for the survey sample.

Of the remaining 98 counties in the State, counties were listed in alphabetical order. Cumulative frequencies of population were recorded. Using a random number as a starting point, the following 16 counties were selected as those in which the 279,385th (4,470,153 ÷ 16) person resided: Adams, Champaign, DeKalb, Greene, Jersey, Kane, LaSalle, Macoupin, Madison, McLean, Peoria, Rock Island, Sangamon, Tazewell, Will and Williamson. The 20 counties from which the study population was drawn are illustrated by heavy outlining on the map in Figure 1. These counties represent approximately 80 percent of the total population of the State of Illinois.

A listing of cities having a population of over 800 was made for each county. Telephone directories for these areas were obtained through the courtesy of Illinois Bell Telephone Company. Because telephone directories are not limited to county boundaries, it was necessary to carefully check the directory city listings against the city listings of the 20 counties. In all cases, no city was omitted if it appeared on the counties' list. Obviously, this method permitted other cities outside the 20-county area to be considered for inclusion in the study. This was not considered to be a limitation of the study, however, since a larger sampling area actually resulted.

The percentage of total population represented by a county governed the number of selections to be made in each county. After the number of listings were estimated in each directory of all the cities representing a county, the

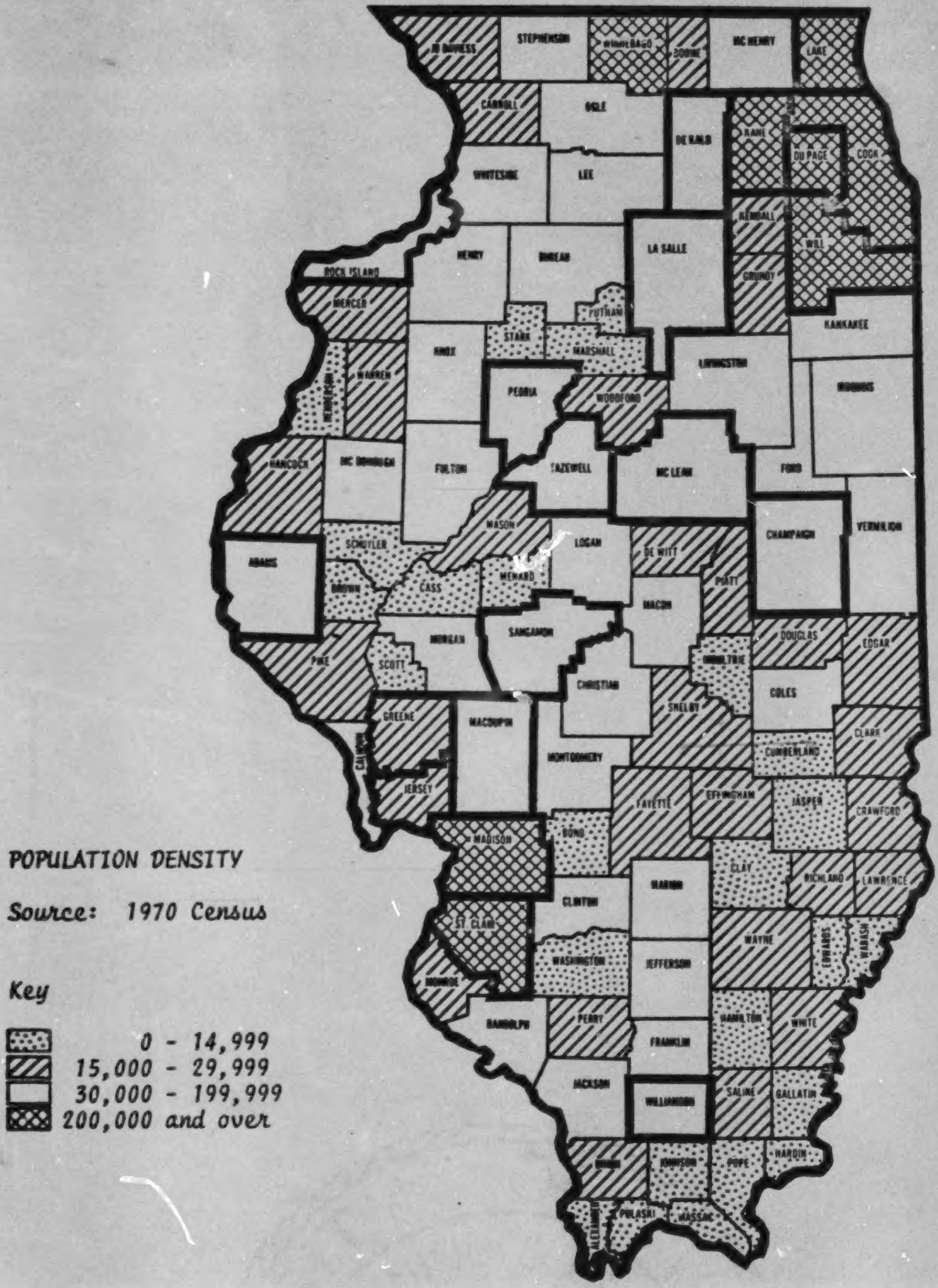

POPULATION DENSITY
Source: 1970 Census
Key
▨ 0 - 14,999
▨ 15,000 - 29,999
☐ 30,000 - 199,999
▩ 200,000 and over
JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
MC HENRY
LAKE
CARROLL
OGLE
DE KALB
KANE
DU PAGE
COOK
WHITESIDE
LEE
KENDALL
WILL
LA SALLE
HENRY
BUREAU
ROCK ISLAND
GRUNDY
PUTNAM
MERCER
KANKAKEE
STARK
KNOX
MARSHALL
LIVINGSTON
HENDERSON
WARREN
PEORIA
WOODFORD
IROQUOIS
HANCOCK
MC DONOUGH
FULTON
TAZEWELL
MC LEAN
FORD
MASON
SCHUYLER
LOGAN
DE WITT
CHAMPAIGN
VERMILION
ADAMS
BROWN
CASS
MENARD
PIATT
MACON
MORGAN
SANGAMON
DOUGLAS
EDGAR
PIKE
SCOTT
MOULTRIE
CHRISTIAN
COLES
GREENE
MACOUPIN
SHELBY
CLARK
CALHOUN
MONTGOMERY
CUMBERLAND
JERSEY
FAYETTE
EFFINGHAM
JASPER
CRAWFORD
MADISON
BOND
CLAY
RICHLAND
LAWRENCE
CLINTON
MARION
ST. CLAIR
WASHINGTON
JEFFERSON
WAYNE
EDWARDS
WABASH
MONROE
RANDOLPH
PERRY
HAMILTON
WHITE
FRANKLIN
JACKSON
WILLIAMSON
SALINE
GALLATIN
UNION
JOHNSON
POPE
HARDIN
ALEXANDER
PULASKI
MASSAC

Figure 1. Map of the State of Illinois showing the 102 counties. (The 20 counties from which the study population was drawn are indicated by heavy outlining.)

number of selections from each telephone book was determined. Random number tables (RAND Corporation, 1955) were used to determine the starting points in each telephone directory. Random numbers also were used for intervals of page, column and telephone number selections in each directory.

Random digit dialing appeared necessary in the Chicago area because approximately 30 percent of persons with telephones have unlisted numbers (Slattery, 1975). (The Chicago area is referred to in the present study as the counties of Cook, DuPage, Kane, Lake and Will. These counties represent approximately 62 percent of Illinois' total population.) Random digit dialing procedures were accomplished by replacing the last three digits of the selected telephone numbers from the Chicago area directories with random numbers. This procedure was recommended by the SRL staff.

A sample of at least 500 completed interviews was desired since it was considered that this would provide a sufficient number of respondents in each occupational classification to permit statistical comparisons among the occupational groups. Based on this objective, a total of 1768 telephone numbers was selected from Illinois telephone directories, 1200 of which were from the Chicago area. These 1768 telephone numbers were recorded on a consecutively numbered form along with the city and county names and a number assigned to the telephone directory from which the selections were made. Exchanges needed for Wide Area Telephone Service (WATS) and University of Illinois Tie Lines were added. All of this information, some of which was indicated in coded form, was transferred to individual introductory format forms (See APPENDICES A and B, SURVEY INSTRUMENT). The introductory format forms were used as the first page of the survey instrument.

DATA COLLECTION

Interviewer Training Sessions

Fifteen persons, both male and female, were trained to conduct the telephone interviews. Training sessions were designed to standardize procedures of the telephone interviews. The first session was planned and conducted with the assistance of Tom Slattery, Sales Manager, Illinois Bell Telephone Company. The purpose and objectives of the study were explained in detail. The importance of reducing variability among interviewers was stressed to make them aware of the need to eliminate as much interviewer bias as possible.

Interviewers were given exercises in voice control and reading rate (American Telephone and Telegraph Company, 1967). One of the tape recordings of a pilot test interview was played and critiqued.

To acquaint interviewers with the survey instrument, the researcher explained and discussed the items on the survey instrument. Some of the points which were emphasized were:

a) Emphasize the following statement by reading slowly: "Do not base your answers on how important the items are to you personally, but how important the items are in keeping your job."
b) Read the rating scale slowly: VERY IMPORTANT, IMPORTANT, SOMEWHAT IMPORTANT, NOT IMPORTANT, DOES NOT APPLY.
c) Reread the rating scale any time respondents need help.
d) Reread any questions respondents do not understand.
e) Do not explain or interpret questions. Do not give examples.
f) Do not read categorical responses for demographic items unless respondents need them.
g) Do not read, under any circumstances, categories for the three attitudinal work satisfaction questions.

In pairs, each interviewer was given the opportunity to make some trial calls. Evaluation forms were filled out by the partner as a call was being completed. The researcher monitored interviewers after the first call. The calls were then discussed in a large group session.

Telephone Interviewing

When the data collection interviewing began, the researcher gave additional instructions to the interviewers. These instructions included keeping a log of all out-of town calls, initialing attempted calls, recording comments of respondents, writing out instructions for call backs, etc. Additional comments and instructions were posted for interviewers at the beginning of each interviewing session.

The offices of the faculty and staff of the Department of Vocational and Technical Education, University of Illinois, Urbana-Champaign, were used to complete the interviews. One office was assigned to each interviewer where each person could complete interviews without interruption. A central distribution center was established for additional forms and for depositing materials at the end of the interviewing sessions. The researcher continued monitoring interviewers at selected intervals during each interviewing session.

The majority of the interviews were completed from 6:00 to 9:30 p.m., Sunday through Thursday. Some day-time calls were made between the hours of 10:00 a.m. and 4:30 p.m., Monday through Friday. At least three attempts were made on all noncontact calls. Call backs at the request of the interviewee were made at the requested times. No interviewer forms were destroyed, making possible a tally of refusals, unemployed, retired and other noncompletions.

At the end of the two-week data collection period, each interviewer completed an evaluation form. This evaluation permitted the interviewers to comment on the over-all experience as well as cite and summarize additional comments of respondents.

DATA ANALYSIS

Data collected with the telephone survey instruments were transferred to IBM cards to be analyzed with the use of frequency distribution, standard scores and discriminant analysis programs. These computerized statistical programs were available through SOUPAC, Computing Services Systems, University of Illinois, Urbana-Champaign.

Before the data were analyzed with standard scores and discriminant analysis programs, the "DOES NOT APPLY" responses (coded "0") were combined with the "NOT IMPORTANT" responses (coded "1") for the 27 occupational survival skill items (See APPENDICES A and B, SURVEY INSTRUMENT, Questions 3-29). The rationale for combining DOES NOT APPLY and NOT IMPORTANT responses was that when an item did not apply to a person's occupation, it was of no importance to that person's job. It was separated on the survey instrument form only because it was determined in the pilot test that persons were able to relate better to the two types of responses. Thus, for the standard scores and discriminant analysis programs, the five-point scaling of: 4 = VERY IMPORTANT, 3 = IMPORTANT, 2 = SOMEWHAT IMPORTANT, 1 = NOT IMPORTANT and 0 = DOES NOT APPLY was converted to: 4 = VERY IMPORTANT, 3 = IMPORTANT, 2 = SOMEWHAT IMPORTANT and 1 = NOT IMPORTANT and DOES NOT APPLY.

The multivariate approach of discriminant analysis was used for analyzing the 27 occupational survival skill items. Discriminant analysis is a method which is useful for comparing, statistically, group differences on two or more variables simultaneously (as were under consideration in the present study).

Discriminant analysis also is especially desirable when correlations exist between variables. Tatsuoka (1970) points out the danger of using several univariate analyses when this situation exists:

> ...this simple and intuitively appealing way of describing differences by listing the variables suffers from a subtle technical difficulty which may sometimes render the description invalid. The danger of getting a distorted picture of the group differences "tends" to increase as the correlations among the variables become larger (although we cannot assert that the greater the correlations, the greater the distortion will necessarily be) (p. 2).

The technique of discriminant analysis provides information for determining whether or not groups differ significantly from one another. If significant group differences are found, discriminant analysis also is useful in providing the information needed to "understand the nature of their differences " (Tatsuoka, 1970, p. 1).

Some basic assumptions for proper use of discriminant analysis can be found in standard texts dealing with multivariate analysis (Kerlinger and Pedhazur, 1973; Rulon, Tiedeman, Tatsuoka and Langmuir, 1967; Tatsuoka, 1970, 1971a and 1971b; Wert, Neidt and Ahmann, 1954; etc.). Tatsuoka (1970) provides the following general rules which are required for discriminant analysis to be appropriate:

1) The number of variables should be larger than the number of groups.
2) The size of the smallest group should be larger than the number of variables.
3) The total sample size should be larger than the number of variables. (A total sample size of two or preferably three times the number of variables is recommended.)
4) Each person must be a member of only one group.

In discriminant analysis, discriminant functions are calculated to determine maximal differentiation among groups. A discriminant function is defined by Kerlinger and Pedhazur (1973) as "a regression equation with a dependent variable that represents group membership. . . . The resulting equation, the discriminant function, maximally discriminates the members of the sample; it tells us to which group each member probably 'belongs'" (p. 337).

The discriminant function, or linear combination, is a weighted sum of the original set of variables which determines the greatest separation of groups. When the relative weights or coefficients are assigned to the corresponding variables, it is possible to see the directional contribution as well as the magnitude of the contribution of the variables which contribute to the maximal differentiation of the groups. Thus, the weights associated with the variables for the linear combination indicate the source of the differences (Tatsuoka, 1970).

Because the variables most likely have different standard deviations, it is necessary to convert the raw-score weights to standardized "scaled" weights before it is possible to "accurately reflect the relative importance of each variable in differentiating among the groups" (Tatsuoka, 1970, p. 52). Discriminant analysis results of the present study are reported in standardized rather than raw form.

Bartlett's V Statistic, which is a chi-square approximation, is used for testing significant differences of the discriminant functions. This statistic is calculated with the following formula:

$$\chi^2 = V_i = 2.3026\ (N-1 - \frac{p+k}{2})\ \log\ (1+\lambda_i),$$

where V_i represents a Bartlett's V Statistic for each function, N represents the total sample size, p represents the variables, k represents the groups and λ_i represents the eigenvalue (relationship of sum of squares within to sum of squares between) associated with each function.

A "V" is computed for each function (k-1 groups) to determine whether or not the group centroids or means are significantly different. The value resulting from computing this statistic (V_i) is compared with the appropriate chi-square table value (α = .01 in the present study) with p+k-2i degrees of freedom. Over-all significance is determined by summing the V_i's and comparing this value with the appropriate chi-square table value having p(k-1) degrees of freedom.

If the value of V is larger than the chi-square table value, then significance is evident for at least the first discriminant function. To determine whether or not additional functions are significant, the first term of the over-all V is removed and the partial sum of the remaining V terms is computed. This partial sum is compared with the appropriate chi-square table value having the appropriate corresponding degrees of freedom. This process is continued until a value is obtained that is no longer significant (Tatsuoka, 1970). A detailed explanation of discriminant analysis and the mathematical rationale of the technique is given by Kerlinger and Pedhazur (1973); Rulon, Tiedeman, Tatsuoka and Langmuir (1967); Tatsuoka (1970, 1971a and 1971b); and Wert, Neidt and Ahmann (1954).

CHAPTER IV

DISCUSSION OF RESULTS

INTERVIEWING

Responses from telephone interviews with workers in the State of Illinois concerning their occupational survival skills formed the basis of the present study. The data were collected over a period of two weeks, April 21-30, 1975. Telephone interviewing sessions of about three hours were conducted daily except for Friday evenings and Saturdays from faculty and staff offices at the University of Illinois, Urbana-Champaign. Each interview was completed in approximately eight to ten minutes. Fifteen trained telephone interviewers worked a total of 196 hours to complete 589 telephone interviews.

Of the 1768 telephone numbers selected for use in this study, there were a variety of reasons for 1179 noncompletions of the telephone interview. Seventy-five persons who refused to complete the interview responded as follows:

27 were at their place of business and could not complete the interview for various reasons,
18 could speak little or no English or could not hear the interviewer,
11 did not want to discuss their jobs,
7 hung up,
6 were ill and
6 had unlisted numbers of which 4 persons were displeased they had been contacted.

An additional 35 noncompletions came from persons who refused to complete the interview after the interviewer called back at the interviewee's request. The researcher has no information concerning the other 282 refusals as to reasons for persons not wanting to complete the interview.

Due to random digit dialing used in the Chicago area, there were 263 noncompletions by reaching an operator because of an incorrect number. Two other large groups of noncompletions came from persons who indicated they were ineligible to participate in the study because they were either retired (151 persons) or had been unemployed for more than one year (110 persons). Even though at least 3 attempts were made on all other noncompletions, there were still 211 "no answer" or "busy" calls made. An additional 44 persons requesting call backs were noncompletions because of no answer, busy or a call-back date requested after the data collection period was terminated.

Eight interviews were eliminated for study use because they were only partially completed. The remaining 589 completed interviews provided the data for the present study.

SAMPLE CHARACTERISTICS

The State of Illinois county population figures along with the study population figures are indicated in Table 1. As previously pointed out, approximately 62 percent of the population of Illinois reside in the 5 counties of Cook, DuPage, Kane, Lake and Will. Over 59 percent of the study sample came from that area of the State. In comparing population percentages with sample percentages in each of the remaining 15 counties from which the study sample was drawn, there was less than 5 percent variation for any one county.

A comparison of the percentages of the types of workers there were in Illinois in 1970 (most current information available) and the types of workers who responded to the survey instrument is presented in Table 2. Although there is only a small variation between the 1970 census figures and the study

TABLE 1

Total Responses by County and County Population of the State of Illinois*

County	Number of Respondents	Percent of Total Sample	Percent of State Population
Cook DuPage Kane Lake Will Chicago Area	348	59.09	61.81
Adams	12	2.04	.64
Champaign	36	6.10	1.47
DeKalb	13	2.21	.64
Greene	4	.68	.15
Jersey	3	.51	.17
LaSalle	10	1.70	1.00
Macoupin	8	1.36	.40
Madison	29	4.92	2.26
McLean	12	2.04	.94
Peoria	18	3.06	1.76
Rock Island	17	2.87	1.50
Sangamon	23	3.91	1.45
Tazewell	19	3.23	1.07
Williamson	3	.51	.44
St. Clair	34	5.77	2.57
Total	589	100.00	78.27

*1970 Census (State of Illinois, Bureau of the Budget, 1973).

TABLE 2

Responses by Occupational Classification and the Total Work Force in Illinois*

Occupational Classification		Number of Respondents	Percent of Total Sample	Percent in Work Force
Gr 1	Professional, Technical, Kindred	108	18.34	14.53
Gr 2	Managers, Officials, Proprietors	64	10.87	8.23
Gr 3	Sales Workers	46	7.81	7.71
Gr 4	Clerical Workers	148	25.13	20.09
Gr 5	Craftsmen, Foremen, Kindred	74	12.56	13.84
Gr 6	Operatives	70	11.88	16.79
Gr 7	Service Workers	52	8.83	12.90
Gr 8	Laborers, except Farm	17	2.88	3.86
Gr 9	Farmers and Farm Workers	10	1.70	2.05
Total		589	100.00	100.00

*1970 Census (State of Illinois, Bureau of the Budget, 1974).

population figures, there appears to be a slightly positive bias in favor of white collar workers in the present study. It is highly possible that this variation may be a reflection of an increase in the number of white collar workers between 1970 and 1975.

When the study was conducted in late April, unemployment in the State of Illinois was near nine percent (CBS News, May 5, 1975). This is reflected, in part, by the employment status of the 295 female and 294 male respondents which is presented in Table 3. Ninety-three percent of the sample was employed at the time of the interview. An additional three percent of the sample indicated that they had been unemployed less than three months, while four percent of the respondents said that they had been unemployed for three to twelve months. Anyone who had been unemployed for over one year was considered ineligible to participate in the study.

TABLE 3

Employment Status of the Study Population

Employment Status	Number of Respondents	Percent of Total Sample
Employed	549	93.21
Unemployed less than 3 months	17	2.88
Unemployed 3 months to less than 6 months	7	1.19
Unemployed 6 months to less than 9 months	11	1.87
Unemployed 9 months to less than 12 months	5	.85
Total	589	100.00

One question interviewees were asked was if they were self-employed. Eighty-seven percent of the sample (512 persons) indicated that they worked for someone other than themselves. The other 13 percent of the respondents said they were self-employed.

Table 4 summarizes the average number of hours respondents worked during a typical week. The majority of persons, 55 percent, said they worked 21 to 40 hours per week. Those persons working more than 40 hours per week totaled 39 percent. The remaining 6 percent of the sample worked less than 21 hours in an average week.

TABLE 4

Hours Worked Weekly by the Study Population

Hours Worked Weekly	Number of Respondents	Percent of Total Sample
10 or less hours	17	2.89
11 to 20 hours	20	3.39
21 to 40 hours	324	55.01
41 or more hours	228	38.71
Total	589	100.00

The size of the business or organization for which respondents worked is presented in Table 5. Over one-fourth of the sample (29 percent) worked for businesses having 501 or more employees. On the other hand, 20 percent of the sample were affiliated with organizations employing 10 or less persons.

TABLE 5

Size of Organization
with Which Respondents Were Affiliated

Number of Employees in Organization	Number of Respondents	Percent of Total Sample
10 or less persons	117	19.86
11 to 25 persons	71	12.05
26 to 50 persons	74	12.57
51 to 100 persons	66	11.21
101 to 500 persons	95	16.13
501 or more persons	166	28.18
Total	589	100.00

The length of time respondents had been employed by their present business or organization is summarized in Table 6. Table 6 also reflects duration of employment for the last job of respondents who were unemployed. About

74 percent of the total sample (436 persons) had been employed by the same organization for 2 or more years; and 27 percent of the total respondents had been employed in the same organization for 11 or more years.

TABLE 6

Duration of Employment in Organization
Where Respondents Worked

Length of Time Employed by Organization	Number of Respondents	Percent of Total Sample
Less than 6 months	51	8.66
6 months to less than 2 years	102	17.32
2 years to less than 6 years	187	31.75
6 years to less than 11 years	91	15.45
11 or more years	158	26.82
Total	589	100.00

Table 7 indicates information obtained from the question, "Do you supervise or direct the work activities of other persons?" Practically half of the respondents (47 percent) said they did not supervise or direct work activities of anyone other than themselves. Of the other 53 percent of the sample who said they did supervise others, 23 percent indicated that they were responsible for less than 6 persons. It should be pointed out that of the 10 percent of the persons who supervised 26 or more persons, most of the respondents who were included in this category were teachers.

TABLE 7

Supervision of Employees by the Study Population

Number of Persons Supervised	Number of Respondents	Percent of Total Sample
None	278	47.20
1 to 5 persons	136	23.09
6 to 10 persons	68	11.55
11 to 25 persons	48	8.15
26 to 50 persons	25	4.24
51 or more persons	34	5.77
Total	589	100.00

The age of respondents is summarized in Table 8. Respondents over 35 years of age comprised 46 percent of the sample. Thirty percent of the persons who were interviewed said they were between the ages of 26 and 35, and approximately one-fourth of the total respondents (24 percent) were workers between the ages of 18 and 25. Persons over 65 years of age accounted for less than 1 percent of the study population.

TABLE 8

Age of the Study Population

Age	Number of Respondents	Percent of Total Sample
18 to 20 years old	47	7.98
21 to 25 years old	95	16.13
26 to 35 years old	176	29.88
36 to 50 years old	160	27.16
51 to 65 years old	106	18.00
Over 65 years old	5	.85
Total	589	100.00

A characteristic of the 589 workers interviewed which showed a wide variation was their highest level of educational achievement. Table 9 indicates that 28 percent of the total respondents (166 persons) had completed at least 16 years of schooling or had a Bachelor's degree. Eleven percent of the total sample (62 persons) had a Master's degree or had completed at least two

TABLE 9

Highest Educational Level Achieved by the Study Population

Highest Grade Completed	Number of Respondents	Percent of Total Sample		Percent of Total Illinois Work Force*
8 or less years	15	2.55		17.35
9 to 11 years	43	7.30		20.96
12 (High School diploma)	193	32.77		35.84
13 years	55	9.34	29.20	13.[illegible]3
14 (Associate degree)	84	14.26		
15 years	33	5.60		
16 (Bachelor's degree)	82	13.92	28.18	12.52
17 years	22	3.73		
18 (Master's degree)	35	5.94		
19 years	8	1.36		
20 years	3	.51		
21 (Advanced degrees--M.D., Ph.D., etc.)	13	2.21		
22 or more years	3	.51		
Total	589	100.00		100.00

*1970 Census (U.S. Government, Department of Commerce, Bureau of the Census, 1973). The study population respondents were 18 years of age or older, whereas the Illinois labor force figures include 16- and 17-year olds.

years of schooling beyond the Bachelor's degree. Only 16 persons, 3 percent of the total sample, had advanced degrees (M.D., Ph.D., etc.) or had completed 5 or more years of schooling beyond the Bachelor's degree. Table 9 also indicates that 10 percent of the respondents had less than a high school education.

FREQUENCIES AND MEANS FOR THE OCCUPATIONAL SURVIVAL SKILLS

When the data were analyzed with the use of frequency distribution and standard scores programs, it was evident that many similarities existed in the types of occupational survival skills needed by workers in the various occupational classifications. Table 10 indicates the frequencies and percentages for each of the 27 occupational survival skill items for the total 589 respondents in the present study. (Variable number, X_i, also is given for ease of reference in comparing data of future tables and figures.)

In terms of frequencies, over 82 percent of the 589 total respondents rated the skill, to be dependable (X_2), as VERY IMPORTANT in keeping their jobs. The following 11 skills were rated as being VERY IMPORTANT for job maintenance by at least 50 percent of the total respondents. These skills, along with percent of response and variable number, include:

82.34%	to be dependable (X_2)
61.63%	to understand written information (X_6)
58.06%	to follow instructions (X_{22})
57.72%	to get along with people with a variety of personalities (X_3)
57.04%	to give an honest day's work (X_{12})
53.31%	to manage time and materials efficiently (X_{26})
52.97%	to be punctual (X_1)
51.95%	to work without close supervision (X_{23})
51.10%	to know what is expected of you (X_{16})
50.25%	to maintain good health (X_{10})
50.25%	to know your own abilities, strengths and weaknesses (X_{11})

TABLE 10

Total Responses for the 27 Occupational Survival Skills

Occupational Survival Skill		Number and Percent of Total Respondents									
		VERY IMPORTANT		IMPORTANT		SOMEWHAT IMPORTANT		NOT IMPORTANT		DOES NOT APPLY	
		No.	%	No.	%	No.	%	No.	%	No.	%
X_1	be punctual	312	52.97	159	27.00	65	11.04	28	4.75	25	4.24
X_2	be dependable	485	82.34	87	14.77	10	1.70	4	.68	3	.51
X_3	get along with people with a variety of personalities	340	57.72	141	23.94	67	11.38	33	5.60	8	1.36
X_4	work as a team member	291	49.40	157	26.66	54	9.17	57	9.68	30	5.09
X_5	organize work activities of other people	174	29.54	114	19.36	82	13.92	90	15.28	129	21.90
X_6	understand written information	363	61.63	143	24.28	34	5.77	31	5.26	18	3.06
X_7	have basic writing skills	220	37.35	157	26.66	92	15.62	86	14.60	34	5.77
X_8	have basic speaking skills	252	42.78	171	29.03	83	14.09	66	11.21	17	2.89
X_9	be neat and clean in appearance	267	45.33	154	26.15	80	13.58	65	11.04	23	3.90
X_{10}	maintain good health	296	50.25	210	35.65	61	10.36	15	2.55	7	1.19
X_{11}	know your own abilities, strengths and weaknesses	296	50.25	215	36.50	53	9.00	17	2.89	8	1.36
X_{12}	give an honest day's work	336	57.04	198	33.62	37	6.28	13	2.21	5	.85
X_{13}	be loyal to the organization for which you work	286	48.56	168	28.52	77	13.07	34	5.77	24	4.08
X_{14}	make independent decisions	248	42.10	199	33.79	64	10.87	55	9.34	23	3.90
X_{15}	use initiative and imagination	248	42.10	199	33.79	65	11.04	54	9.17	23	3.90
X_{16}	know what is expected of you	301	51.10	235	39.90	38	6.45	10	1.70	5	.85
X_{17}	have basic arithmetic skills	254	43.13	128	21.73	95	16.13	79	13.41	33	5.60
X_{18}	know how to use job materials, machines or tools	282	47.88	138	23.43	64	10.87	56	9.50	49	8.32
X_{19}	locate information, materials or equipment	276	46.86	187	31.75	55	9.34	39	6.62	32	5.43
X_{20}	have some type of specialized training	244	41.43	159	27.00	70	11.88	93	15.79	23	3.90
X_{21}	have a basic knowledge of your organization's operating procedures	239	40.58	190	32.26	76	12.90	63	10.69	21	3.57
X_{22}	follow instructions	342	58.06	183	31.07	28	4.75	15	2.55	21	3.57
X_{23}	work without close supervision	306	51.95	180	30.56	34	5.77	45	7.64	24	4.08
X_{24}	work under tension or pressure	287	48.73	153	25.97	57	9.68	65	11.04	27	4.58
X_{25}	adjust to various work situations	284	48.22	207	35.14	51	8.66	24	4.08	23	3.90
X_{26}	manage time and materials efficiently	314	53.31	203	34.46	39	6.62	24	4.08	9	1.53
X_{27}	follow safety regulations	285	48.39	134	22.75	63	10.69	42	7.13	65	11.04

Of the 27 occupational survival skills included in the survey instrument, organizing the work activities of other people (X_5) was rated as the least important skill. Thirty-seven percent of the sample said this skill either was NOT IMPORTANT or DID NOT APPLY to their jobs. Thirty percent of the respondents, however, maintained it was VERY IMPORTANT.

Table 11 indicates the means and standard deviations for the total sample for each of the 27 occupational survival skills. Whereas the skill of being dependable (X_2) yielded the highest mean, 3.78, only 5 of the 27 skills have means less than 3.00. This would indicate that, on the average, 22 skills are considered IMPORTANT by the total sample.

The skill of organizing the work activities of other people (X_5) yielded the lowest mean, 2.41. Although all these means would seem rather high (a 2.00 or higher rater indicated the skill is at least SOMEWHAT IMPORTANT), one must consider the 27 skills on the survey instrument were selected from a preliminary list of over 500 items. The 27 items were selected to represent occupational survival skills that would be as broad as possible; consequently, it would appear that most skills would be rated as at least SOMEWHAT IMPORTANT by persons in most types of occupations.

A rank ordering of means for skills receiving means greater than 2.50 and means less than 2.50 in each of the nine occupational classifications are presented in Tables 12 and 13, respectively. These tables differ from Table 11 in that a skill ranking higher than another skill must receive a higher mean in every occupational group than the lowest mean for another skill in any occupational group. For example, the skill of being dependable (X_2) has as its lowest mean for any one occupational group, 3.59

TABLE 11

Means and Standard Deviations of the 27 Occupational Survival Skills for the Total Sample Population

Occupational Survival Skill	Mean	Standard Deviation
X_2 be dependable	3.78	.53
X_{12} give an honest day's work	3.45	.75
X_{22} follow instructions	3.41	.84
X_{16} know what is expected of you	3.40	.72
X_6 understand written information	3.39	.92
X_{26} manage time and materials efficiently	3.35	.84
X_{11} know your own abilities, strengths and weaknesses	3.33	.81
X_3 get along with people with a variety of personalities	3.32	.93
X_{10} maintain good health	3.32	.81
X_1 be punctual	3.24	.97
X_{25} adjust to various work situations	3.24	.91
X_{23} work without close supervision	3.23	1.00
X_{13} be loyal to the organization for which you work	3.16	.99
X_{19} locate information, materials or equipment	3.13	1.01
X_4 work as a team member	3.11	1.08
X_{24} work under tension or pressure	3.08	1.10
X_{15} use initiative and imagination	3.05	1.03
X_{14} make independent decisions	3.05	1.03
X_9 be neat and clean in appearance	3.02	1.09
X_{27} follow safety regulations	3.01	1.15
X_{18} know how to use job materials, machines or tools	3.01	1.14
X_8 have basic speaking skills	3.01	1.07
X_{21} have a basic knowledge of your organization's operating procedures	2.99	1.05
X_{20} have some type of specialized training	2.90	1.15
X_{17} have basic arithmetic skills	2.89	1.16
X_7 have basic writing skills	2.81	1.14
X_5 organize work activities of other people	2.41	1.26

TABLE 12

Rank Ordering of Means Greater Than 2.50 for the Nine Occupational Classifications

Occupational Survival Skill	Occupational Group*								
	1	2	3	4	5	6	7	8	9
Means Above 3.50 for Every Occupational Group									
X_2 be dependable	3.79	3.72	3.83	3.84	3.78	3.76	3.73	3.59	3.90
Means Above 3.00 for Every Occupational Group									
X_{12} give an honest day's work	3.33	3.42	3.54	3.52	3.46	3.50	3.29	3.35	3.80
X_{16} know what is expected of you	3.27	3.44	3.41	3.49	3.39	3.39	3.44	3.24	3.10
X_{10} maintain good health	3.13	3.31	3.33	3.36	3.24	3.41	3.65	3.06	3.60
X_{26} manage time and materials efficiently	3.31	3.59	3.33	3.39	3.32	3.40	3.10	3.06	3.70
X_1 be punctual	3.00	3.05	3.07	3.25	3.55	3.34	3.42	3.41	3.40
Means Above 2.50 for Every Occupational Group									
X_{22} follow instructions	3.05	2.98	3.52	3.72	3.53	3.56	3.38	3.41	3.30
X_{23} work without close supervision	3.37	3.31	3.13	3.27	3.30	3.10	2.92	3.06	3.20
X_4 work as a team member	3.14	3.23	2.93	3.09	3.22	3.09	3.06	2.94	2.90
X_{25} adjust to various work situations	3.23	3.55	3.02	3.18	3.42	3.11	3.13	2.82	3.90
X_{11} know your own abilities, strengths and weaknesses	3.37	3.38	3.28	3.35	3.39	3.27	3.25	2.82	3.60
X_{13} be loyal to the organization for which you work	2.81	3.39	3.33	3.34	3.07	3.20	2.96	3.12	3.40
X_3 get along with people with a variety of personalities	3.32	3.72	3.65	3.37	3.16	3.00	3.35	2.76	2.90
X_{19} locate information, materials or equipment	3.38	3.02	2.93	3.16	3.53	2.83	2.87	2.53	3.50
X_{14} make independent decisions	3.31	3.47	3.22	2.86	3.16	2.53	2.92	2.59	3.70
Total Number of Respondents	108	64	46	148	74	70	52	17	10

*1 Professional, Technical, Kindred
2 Managers, Officials, Proprietors
3 Sales Workers
4 Clerical Workers
5 Craftsmen, Foremen, Kindred
6 Operatives
7 Service Workers
8 Laborers, except Farm
9 Farmers and Farm Workers

TABLE 13

Rank Ordering of Means Less Than 2.50 for One or More of the Nine Occupational Classifications

Occupational Survival Skill	Occupational Group*								
	1	2	3	4	5	6	7	8	9
Means Above 2.00 for Every Occupational Group									
X_{21} have a basic knowledge of your organization's operating procedures	2.85	3.34	3.30	3.05	2.93	2.87	2.73	2.41	3.50
X_6 understand written information	3.62	3.53	3.33	3.56	3.58	2.91	2.98	2.35	3.70
X_{24} work under tension or pressure	3.19	3.34	2.96	3.22	2.92	2.74	3.12	2.35	3.20
X_{15} use initiative and imagination	3.34	3.48	3.30	2.88	3.14	2.59	2.83	2.29	3.50
X_{27} follow safety regulations	2.81	2.75	2.28	2.66	3.64	3.63	3.42	3.59	3.50
X_{18} know how to use job materials, machines or tools	2.84	2.52	2.24	3.07	3.55	3.47	2.87	3.41	3.70
X_8 have basic speaking skills	3.37	3.31	3.46	3.16	2.55	2.21	2.96	2.24	3.20
X_{17} have basic arithmetic skills	2.94	3.02	3.26	2.92	3.12	2.67	2.33	2.18	3.40
X_7 have basic writing skills	3.19	3.06	2.89	3.01	2.55	2.17	2.48	2.24	2.80
Means Above 1.50 for Every Occupational Group									
X_5 organize work activities of other people	2.77	3.38	2.28	1.97	2.65	1.83	2.25	2.00	3.40
X_9 be neat and clean in appearance	2.97	3.30	3.61	3.39	2.26	2.56	3.44	2.06	1.80
X_{20} have some type of specialized training	3.58	2.97	2.43	2.70	3.35	2.37	2.87	1.59	3.10
Total Number of Respondents	108	64	46	148	74	70	52	17	10

*1 Professional, Technical, Kindred
2 Managers, Officials, Proprietors
3 Sales Workers
4 Clerical Workers
5 Craftsmen, Foremen, Kindred
6 Operatives
7 Service Workers
8 Laborers, except Farm
9 Farmers and Farm Workers

(Group 8, Laborers, except Farm). This mean is higher than the lowest mean for any other skill in any one occupational group.

A listing of those skills which yielded means greater than 3.00 in each of the nine occupational classifications is considerably different from the listing of skills based on total sample means. The previous listing, where total sample means were reported (Table 11), contained 22 skills with means of 3.00 or higher. The following skills from Table 12 had mean scores of 3.00 or higher in each of the nine occupational classifications:

X_2 be dependable
X_{12} give an honest day's work
X_{16} know what is expected of you
X_{10} maintain good health
X_{26} manage time and materials efficiently
X_1 be punctual

The foregoing information is offered as partial support for the first hypothesis, that there are occupational survival skills which are needed by all types of workers. However, before any conclusions based on means alone are made concerning the skills needed by workers in all types of occupations, differences in skills among occupations should be considered.

The second hypothesis, that of identifying the skills which are common to one or more of the nine occupational classifications, is supported by the results presented in the next section. This information also gives additional support to the first hypothesis because of the lack of identifying skills which differ significantly in the various occupational groups.

DISCRIMINANT ANALYSIS FOR THE OCCUPATIONAL SURVIVAL SKILLS

The statistical technique of discriminant analysis was utilized to test the second hypothesis--that of identifying occupational survival skills which are not common to all nine occupational classifications, but are important to one or more of the nine occupational groups. The results of discriminant analysis with the 27 occupational survival skill variables and the 9 occupational groups are presented in Table 14.

Of the eight functions (k-1 groups), the first three functions (Table 14) are significant at the .001 level. (Note also Bartlett's V Statistic for testing over-all significance.) Since significance of at least one function indicates there are, indeed, differences in the types of occupational survival skills needed for various occupations, this supports the second hypothesis statement. For sake of clarity, each of the three significant functions are presented separately in the following three sub-sections.

First Significant Discriminant Function

The skills which maximally differentiate among the 9 occupational groups were determined by examining the standardized weights associated with each of the 27 variables for each of the significant discriminant functions. The standardized weights for the first significant discriminant function are plotted in Figure 2a. The occupational survival skills whose weights are clustered around zero on the scale contribute very little to the separation of groups, whereas the skills associated with the weights at both extremes of the scale (high positive and negative values) provide maximal separation among occupational groups. By visual examination of the weights for the first significant discriminant function, it was determined that the five occupational survival skills whose weights are bracketed in Figure 2a contribute the greatest to the differentiation among groups.

The linear combination for the first significant discriminant function, showing only the five highest positive and negative weights, is:

T[illegible]LE 14

Summary of Discriminant Functions for the 9 Occupational Groups and the 27 Occupational Survival Skills

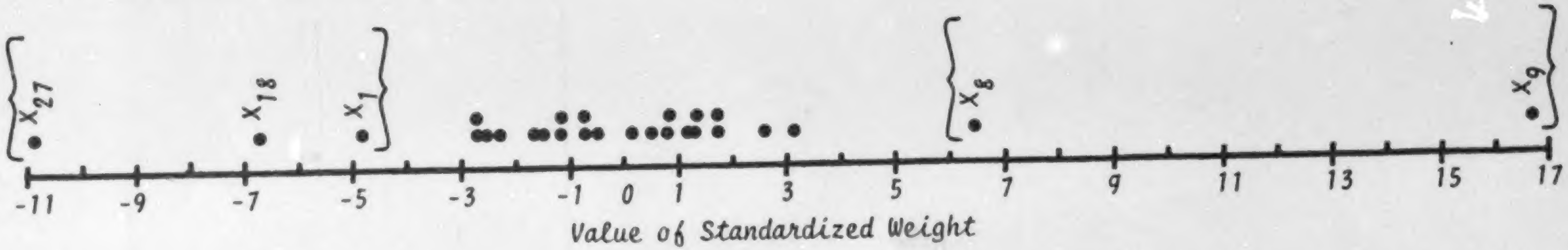
Discriminant Function	Bartlett's V Statistic χ^2 (approx.)*	Degrees of Freedom	Percentage of Total Disc. Power	p
1	552.89	182	39.06	$< .001$
2	307.55	150	29.38	$< .001$
3	202.95	120	11.00	$< .001$
4	105.82	92	10.15	$> .10$
5	71.30	66	3.41	
6	39.48	42	3.14	
7	15.18	20	2.38	
8	0.00	0	1.47	
Over-all	860.38	216		$< .001$

Rao's F-ratio approximation (df = 216; 4279) $F = 4.29$ $p < .001$

Total discriminatory power $\hat{\omega}^2_{\text{multi.}} = .776$

*residual remaining after removing succeeding discriminant functions

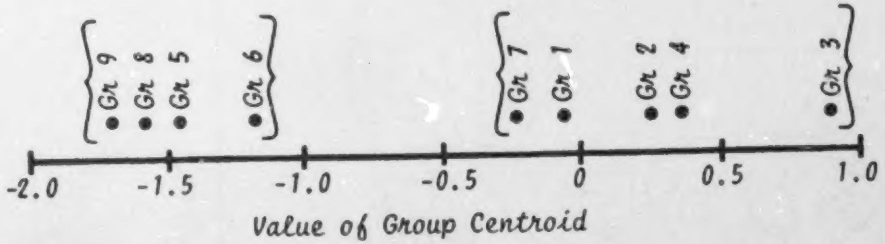
a. Standardized discriminant weights.



X_{27} = follow safety regulations
X_{18} = know how to use job materials, machines or tools
X_1 = be punctual

X_9 = be neat and clean in appearance
X_8 = have basic speaking skills

b. Occupational group centroids.



Gr 5 = Craftsmen, Foremen, Kindred
Gr 6 = Operatives
Gr 8 = Laborers, except Farm
Gr 9 = Farmers and Farm Workers

Gr 1 = Professional, Technical, Kindred
Gr 2 = Managers, Officials, Proprietors
Gr 3 = Sales Workers
Gr 4 = Clerical Workers
Gr 7 = Service Workers

Figure 2. First significant discriminant function with the 27 occupational survival skills (X_i) and the 9 occupational groups.

$$Y_1 = -4.95X_1 \quad \ldots \quad +6.49X_8 \quad +16.61X_9 \quad \ldots \quad -6.87X_{18} \quad \ldots \quad -10.96X_{27}.$$

(Values of the standardized discriminant weights associated with each of the 27 variables are indicated in APPENDIX C, Table C-1.)

Occupational group centroids for the first significant discriminant function are plotted in Figure 2b. (Values of each of the nine occupational group centroids are indicated in APPENDIX C, Table C-2.) For the first function, it appears that the occupational groups are basically separated into two clusters--Groups 1, 2, 3, 4 and 7; and Groups 5, 6, 8 and 9. The occupational survival skills associated with the weights of the linear combination can now be viewed with respect to the clustering of the sample centroids of the occupational groups.

The five-group cluster, comprised of Professional, Technical, Kindred (Gr 1); Managers, Officials, Proprietors (Gr 2); Sales Workers (Gr 3); Clerical Workers (Gr 4); and Service Workers (Gr 7) are mainly white collar workers. The occupational survival skills which tend to cluster these five groups together are those skills which are associated with the high positive and negative weights of the linear combination. These skills also indicate that the remaining four groups form a second cluster. Although the groups within each cluster are similar, the two clusters do tend to differ from each other.

With respect to the five-group cluster of occupations (white collar workers), the two skills with high positive weights (Figure 2a) can be considered extremely important to them. Consequently, occupational survival for white collar workers depends to a large extent on the skills of being neat and clean in appearance (X_9) and having basic speaking skills (X_8).

To these same five groups, occupational survival is not as dependent upon the skills of a) following safety regulations (X_{27}), b) knowing how to use job materials, machines or tools (X_{18}) and c) being punctual (X_1). Figure 2a indicates these three skills have high negative weights.

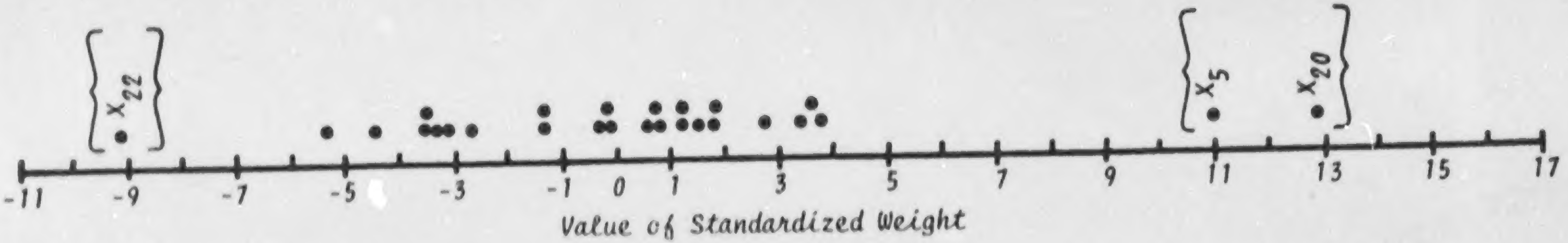
The other four groups that are clustered together on the first function are mainly persons who are blue collar workers. These groups are comprised of Craftsmen, Foremen, Kindred (Gr 5); Operatives (Gr 6); Laborers, except Farm (Gr 8); and Farmers and Farm Workers (Gr 9). These four groups, in contrast to white collar workers, consider that occupational survival depends to a large extent on a) following safety regulations (X_{27}), b) knowing how to use job materials, machines or tools (X_{18}) and c) being punctual (X_1). Alternatively, the skills of basic speaking skills (X_8) and being neat and clean in appearance (X_9) are of lesser importance to them for occupational survival.

The percentage of the total discriminating power of the battery as a whole that is accounted for in the first discriminant function is 39.06 percent. Consequently, approximately 39 percent of the total discriminability among groups is attributable to the first discriminant function.

Second Significant Discriminant Function

The second significant function indicates maximal separation is again between two clusters of occupational groups (Figure 3). One cluster is made up of four groups of persons (Groups 1, 2, 5 and 9). These groups are identified as Professional, Technical, Kindred (Gr 1); Managers, Officials, Proprietors (Gr 2); Craftsmen, Foremen, Kindred (Gr 5); and Farmers and Farm Workers (Gr 9). These four groups include a large number of persons who are proprietors, managers, supervisors and foremen.

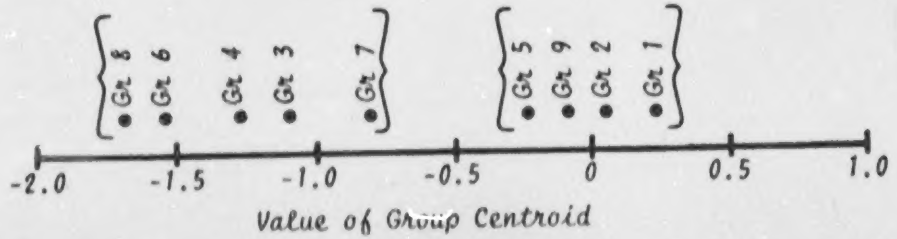
a. Standardized discriminant weights.



X_{22} = follow instructions

X_{20} = have some type of specialized training
X_5 = organize work activities of other people

b. Occupational group centroids.



Gr 3 = Sales Workers
Gr 4 = Clerical Workers
Gr 6 = Operatives
Gr 7 = Service Workers
Gr 8 = Laborers, except Farm

Gr 1 = Professional, Technical, Kindred
Gr 2 = Managers, Officials, Proprietors
Gr 5 = Craftsmen, Foremen, Kindred
Gr 9 = Farmers and Farm Workers

Figure 3. Second significant discriminant function with the 27 occupational survival skills (X_i) and the 9 occupational groups.

The linear combination for the second significant discriminant function, showing only the three highest positive and negative weights, is:

$$Y_2 = \ldots \ +10.94X_5 \ \ldots \ +12.77X_{20} \ \ldots \ -9.20X_{22} \ \ldots \ .$$

(Values of the standardized discriminant weights associated with each of the 27 variables as well as values of each of the 9 occupational group centroids are indicated in APPENDIX C.)

The skills which tend to cluster these four occupational groups together include having some type of specialized training (X_{20}) and organizing work activities of other people (X_5). These two skills appear to be extremely important for managerial-type personnel to possess.

The skill which appears to be much less important to these persons for occupational survival is the ability to follow instructions (X_{22}). It does not seem unreasonable that a leadership role should be appropriate for the management staff.

The other cluster of occupational groups on the second function includes five groups (Groups 3, 4, 6, 7 and 8)--Sales Workers (Gr 3); Clerical Workers (Gr 4); Operatives (Gr 6); Service Workers (Gr 7); and Laborers, except Farm (Gr 8). These classifications represent mainly subordinates, those workers who carry out directives of management. Thus, it is not unrealistic that a very important occupational survival skill for them is that of following directions (X_{22}). It follows, too, that job maintenance depends to a much lesser degree upon the skills of having some type of specialized training (X_{20}) and organizing work activities of other people (X_5).

Approximately 29 percent of the total discriminability among groups is attributable to the second discriminant function. The percentage of the total discriminating power of the battery as a whole that is apportioned to the first and second discriminant functions, collectively, is approximately 69 percent.

Third Significant Discriminant Function

On the third significant discriminant function, Groups 1, 2, 3, 4, 5, 6 and 8 are clustered together between the two outer extremes of Group 7 and Group 9 (Figure 4). Service Workers (Gr 7) and Farmers and Farm Workers (Gr 9) are those occupational groups which maximally differentiate among the 27 occupational survival skills. Although these two groups are separated quite markedly from a large cluster of groups lying between them, care should be exercised in interpreting the results of this function.

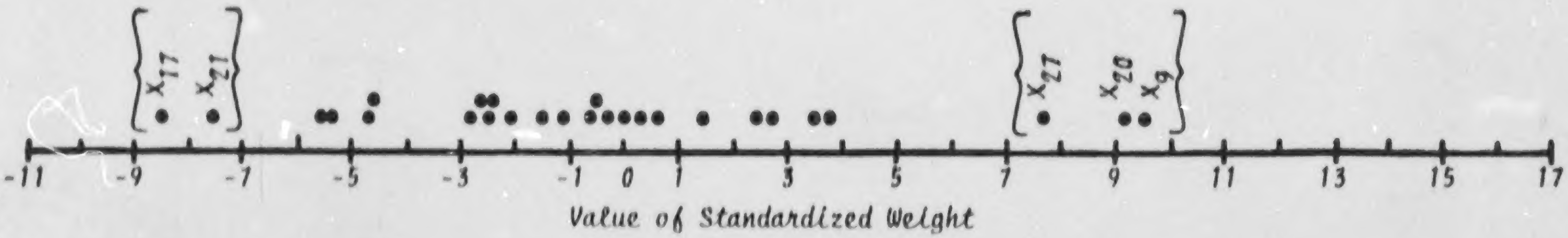
Farmers and Farm Workers represent only about two percent of the total sample. Two percent is compatible for representing the population from which the sample was taken, but it does not satisfy a basic rule of discriminant analysis. A general rule to follow when using discriminant analysis is that the size of the smallest group should not be less than the number of variables used (Tatsuoka, 1970). Only 10 persons represent Group 9, Farmers and Farm Workers. This is an exceptionally small group considering there are 27 variables being studied in the discriminant functions. (Note that Group 8, Laborers, except Farm, with 17 persons also may be in question in interpreting results.)

The linear combination for the third significant discriminant function, showing only the five highest positive and negative weights, is:

$$Y_3 = \ldots \; +9.41X_9 \; \ldots \; -8.64X_{17} \; \ldots \; +9.23X_{20} \; -7.64X_{21} \; \ldots \; +7.68X_{27}.$$

(Values of the standardized discriminant weights associated with each of the

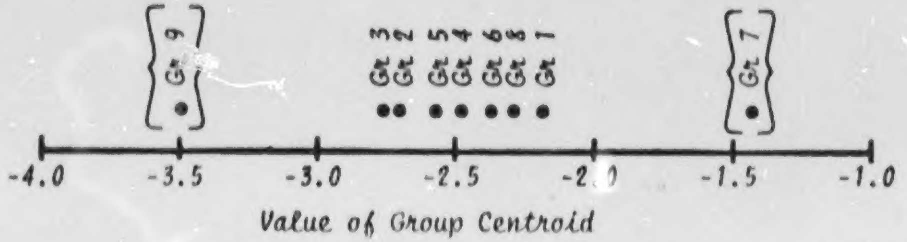
a. Standardized discriminant weights.



X_{17} = have basic arithmetic skills
X_{21} = have a basic knowledge of your organization's operating procedures

X_{9} = be neat and clean in appearance
X_{20} = have some type of specialized training
X_{27} = follow safety regulations

b. Occupational group centroids.



Gr 9 = Farmers and Farm Workers

Gr 7 = Service Workers

Figure 4. Third significant discriminant function with the 27 occupational survival skills (X_i) and the 9 occupational groups.

27 variables as well as values of each of the 9 occupational group centroids are indicated in APPENDIX C.)

Figure 4a indicates the standardized weights associated with the occupational survival skills of the linear combination which maximally separates Service Workers (Gr 7) from Farmers and Farm Workers (Gr 9) for the third significant function. Service Workers are persons who are employed in food, health, personal, protective and household services. They include such occupations as cooks, practical nurses, airline stewardesses, elevator operators, firemen, guards and policemen. The skills which are considered to be extremely important for occupational survival by Service Workers are a) being neat and clean in appearance (X_9), b) having some type of specialized training (X_{20}) and c) following safety regulations (X_{27}).

A skill which is considered to be of lesser importance for occupational survival in the Services area is having basic arithmetic skills (X_{17}). Having a basic knowledge of your organization's operating procedures (X_{21}) is another skill which is not considered too vital for occupational survival in a Services career.

Farmers and Farm Workers (Gr 9), on the other hand, consider that occupational survival does, indeed, depend upon having basic arithmetic skills (X_{17}). Having a basic knowledge of your organization's operating procedures (X_{21}) is also an extremely important skill for Farmers to possess.

The same group indicated that of the 27 skills rated, occupational survival depends the least upon the skills of a) being neat and clean in appearance (X_9), b) having some type of specialized training (X_{20}) and c) following safety regulations (X_{27}).

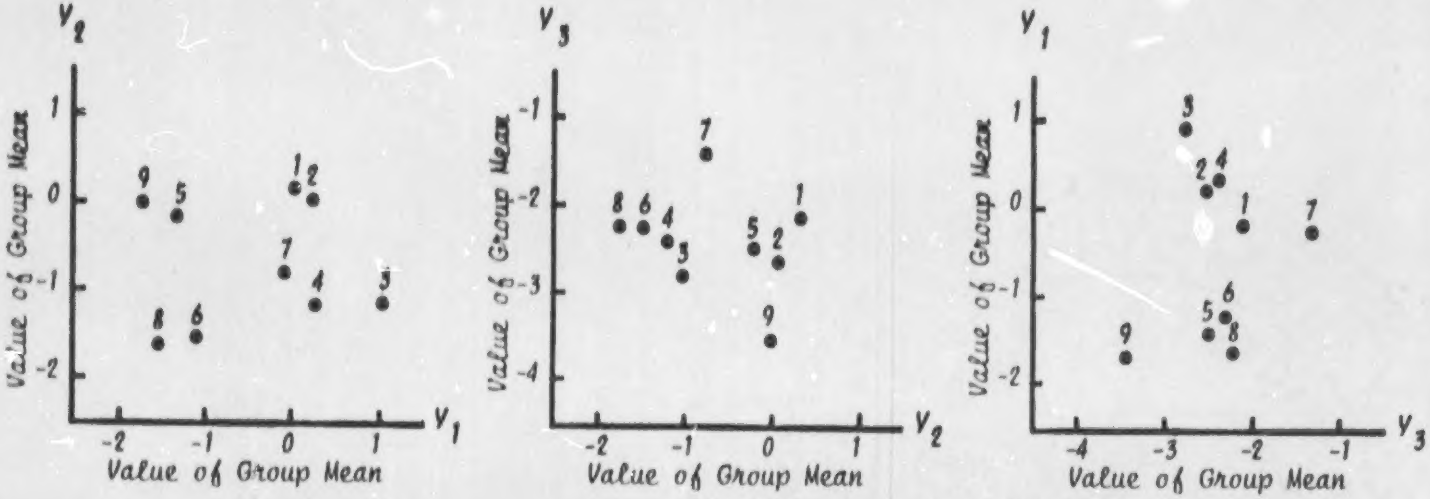
Most of the persons in Group 9 (Farmers and Farm Workers) were farm owners, tenants and managers. Had the sample been larger, this may not have been true. Because this occupational group had only 10 total respondents, extreme caution should be exercised in drawing conclusions based on these results alone.

Eleven percent of the total discriminability among groups is attributable to the third discriminant function. Thus, approximately 80 percent of the total discriminating power of the battery as a whole is apportioned to the first three significant functions.

Occupational Group Similarities

The group centroids for each of the three significant discriminant functions are graphed in Figure 5. Whereas Figures 2b, 3b and 4b present the first, second and third significant discriminant functions, respectively, all three significant discriminant functions can be examined in relation to each other in Figure 5.

Professional, Technical, Kindred (Gr 1) and Managers, Officials, Proprietors (Gr 2) are clustered together for each of the three significant discriminant functions. Since the 27 variables of the present study do not differentiate between these two groups, the occupational survival skills which are necessary for workers in one occupational classification appear to be of equal importance to the workers in the other occupational group. The same would hold true concerning the occupational survival skills of lesser importance. That is, the occupational survival skills which are of lesser importance to workers in the Professional, Technical, Kindred group also appear to be of lesser importance to the workers in the group of Managers, Officials, Proprietors.



Occupational Groups Referred to in Diagrams

1 = Professional, Technical, Kindred
2 = Managers, Officials, Proprietors
3 = Sales Workers
4 = Clerical Workers
5 = Craftsmen, Foremen, Kindred
6 = Operatives
7 = Service Workers
8 = Laborers, except Farm
9 = Farmers and Farm Workers

Figure 5. Group means for the 3 significant discriminant functions (Y_1, Y_2 and Y_3) with the 27 occupational survival skills and the 9 occupational groups.

Two other occupational groups, Operatives (Gr 6) and Laborers, except Farm (Gr 8), also are clustered together for each of the three significant discriminant functions. Similarly, the occupational survival skills of the present study which are important to workers in the Operatives group appear to be equally important to the workers in the Laborers, except Farm group. The occupational survival skills of lesser importance to one group also appear to be of lesser importance to the other group. Since, however, the latter group was represented by an extremely small sample of workers, any interpretation of the results involving the Laborers, except Farm (Gr 8) occupational group should be made with caution.

The occupational survival skills compared in the present study do not appear to discriminate between the occupations which comprise the groups of Professional, Technical, Kindred (Gr 1) and Managers, Officials, Proprietors (Gr 2). Likewise, workers of the study population comprising the groups of Operatives (Gr 6) and Laborers, except Farm (Gr 8) do not differ in the types of skills (at least in terms of the 27 variables of the present study) they feel are important or are of a lesser degree of importance for occupational survival.

Of the 27 occupational survival skills identified and compared in the present study, 10 skills contributed to the maximal separation of two or more of the 9 occupational groups. These 10 occupational survival skills can be considered as those job knowledges, traits or competencies which are more important for job maintenance for certain types of occupations than they are for other types of occupations:

X_1 be punctual
X_5 organize work activities of other people
X_8 have basic speaking skills

X_9 be neat and clean in appearance
X_{17} have basic arithmetic skills
X_{18} know how to use job materials, machines or tools
X_{20} have some type of specialized training
X_{21} have a basic knowledge of your organization's operating procedures
X_{22} follow instructions
X_{27} follow safety regulations

The other 17 occupational survival skills, however, did not appear to discriminant between or among groups. That is, when the 27 occupational survival skills were statistically tested by discriminant analysis for determining differences among the 9 occupational groups, 17 skills did not contribute appreciably to any significant differences. Consequently, the following 17 skills appear to be important for occupational survival regardless of occupational classification:

X_2 be dependable
X_3 get along with people with a variety of personalities
X_4 work as a team member
X_6 understand written information
X_7 have basic writing skills
X_{10} maintain good health
X_{11} know your own abilities, strengths and weaknesses
X_{12} give an honest day's work
X_{13} be loyal to the organization for which you work
X_{14} make independent decisions
X_{15} use initiative and imagination
X_{16} know what is expected of you
X_{19} locate information, materials or equipment
X_{23} work without close supervision
X_{24} work under tension or pressure
X_{25} adjust to various work situations
X_{26} manage time and materials efficiently

Since occupational group similarities as well as priority differences were found in the types of skills workers need for occupational survival, both of the present study's hypotheses are supported: 1) there are occupational survival skills which appear to be important for workers in all types of occupations and 2) there are occupational survival skills which appear to be more important for workers in certain types of occupations than they are for workers in other types of occupations.

Even though similarities and priority differences were found in the types of survival skills workers consider important, none of the 27 skills were rated as being totally unimportant by any occupational group. Consequently, each of the 27 occupational survival skills rated by respondents in each of the 9 occupational groups can be considered to have some degree of importance for occupational survival.

FREQUENCIES FOR WORK SATISFACTION QUESTIONS

Three free-response questions concerning respondents' attitudes toward work were included in the interview. These questions permitted persons to express their views concerning a) why people work, b) why people dislike work and c) why people change jobs. Responses to each question were categorized and frequencies were obtained. The results from these questions are included in the following three sub-sections.

Why People Work

The question, "What is the main reason you keep your job?" was asked of each of the 589 workers interviewed. After combining similar responses, seven categories were developed. These categorical responses are presented in Table 15. The types of responses which were combined into the seven categories are given below to provide an interpretation of the categorical titles. (Sample responses are unedited.)

1) Salary, Financial Security and Job Security: salary, financial security, job security, pays well, money, provides for me and my family, make a living, keep myself, income, survival, security, financial and job security, a way of living,

TABLE 15

Reasons Given by Workers as to Why They Keep Their Jobs

Category Number	Category*	Number of Respondents	Percent of Total Sample
1	Salary, Financial Security and Job Security	266	45.16
2	Work Satisfaction	249	42.27
3	Experience and Good Advancement Opportunities	26	4.41
4	Better Position Unavailable	22	3.74
5	Important Personal Reasons	13	2.21
6	Other	13	2.21
	Total	589	100.00

*Category composition explained in text.

life, employee benefits and convenience, to stay in business, need a job, responsibility to my family, steady income, benefits.

2) Work Satisfaction: work satisfaction, likes it, something to do, work activity, enjoys it, challenging, interesting, feels needed because of my special skills, offers responsibility, like the job and the people, like being my own boss, benefits the public, lifestyle, believes in what I am doing, interest in the products I sell, unusual and unique job, independence, self-fulfillment, pride in skills, to serve people, like to be active by doing something constructive, fascinating, freedom of working hours and good working conditions, bored at home, protection of the environment.

3) Experience and Good Advancement Opportunities: experience, good advancement opportunities, field is always open, apprenticeship, educational training program, fulfill state requirements, investment in career, seniority, getting know-how, for early retirement, opportunity to move ahead in career.

4) Better Position Unavailable: better position unavailable, availability of jobs in area, best I can do, difficulty finding something else, too old to look for another job, this is all I know how to do.

5) Important Personal Reasons: important personal reasons, family, school, geographical location, health, convenience to home and school, husband works there, habit of working in the same place, likes the community, to help my husband.

6) Other: none, positive attitude, drafted, undecided, because I'm agressive and dependable, ability to be understanding, honest day's work, no age limit, do what work is expected of me, I'm imaginative and qualified, understanding management requirements.

In referring to Table 15, 45 percent of the respondents indicated that they keep their jobs because of salary, financial security or job security. These responses were combined into one category because many persons gave a two-part answer which included salary and security aspects. Work satisfaction was the main reason why 42 percent of the total sample keep their jobs.

Why People Dislike Work

A second free-response question concerning work satisfaction asked of the study population was, "What is the one thing you dislike most about your job?" Responses to this question were combined into 12 categories which are summarized in Table 16. The 12 categories with the types of responses each category represents are as follows: (Sample responses are unedited.)

1) Salary and Benefits: salary, benefits, pay, lack of a good selling price at the market, inability to market the product, having to work, underpaid, money, irate prices, investment it takes, financially insecure.

2) Working Hours: working hours, hours of different shifts, getting up in the morning, amount of time worked, overtime, working six days a week, early hours must be to work, too much time involved, amount of time required to work, shift work, getting up early, working weekends, being on call, working nights or evenings, swing shift, short lunch period, work schedules, seasonal work.

3) Working Conditions: working conditions, using obsolete equipment, psychological effects (like seeing someone die), too much lifting, working conditions and lack of available materials, paper work, weather conditions, confining work, danger and hazards, standing eight hours a day, legal responsibilities of job, filing, writing reports, depressing surroundings, health factors, doing very dirty work, lack of space, too crowded, getting clothing dirty from equipment with no clothing allowance, hard work, being cooped up in the office, frightening, dangerous, not being able to meet people, neighborhood or area of work, fast-slow periods of work, lack of business in economic slump, air pollution, too much unscheduled work, typing, making out work schedules, too much detail, eye strain, dressing up and being punctual, continuously being in the same area of work, enormous responsibility, working on a commission, too much travel, environment.

4) Routine Work and Boredom: routine work, boredom, boredom of when business is slow, being alone in the office, too narrow of work, over specialized in job, routine and repetitious work.

5) Pressure and Tension: pressure, tension, problems, frustration, not being able to communicate, never get caught up with work, pressure of work never done, pressure for more customers and business, need more help because I have more than one person can do, fatiguing, having to make quick decisions, pressure of too much responsibility.

TABLE 16

Reasons Given by Workers as to Why They Dislike Their Jobs

Category Number	Category*	Number of Respondents	Percent of Total Sample
1	Salary and Benefits	31	5.26
2	Working Hours	66	11.21
3	Working Conditions	80	13.58
4	Routine Work and Boredom	24	4.08
5	Pressure and Tension	34	5.77
6	Lack of Authority, Responsibility and Initiative	16	2.72
7	Supervision and Management	90	15.28
8	Co-workers	15	2.55
9	Clientele	22	3.74
10	Important Personal Reasons	23	3.90
11	None; None, Like Everything; and Cannot Answer	167	28.35
12	Other	21	3.56
	Total	589	100.00

*Category composition explained in text

6) Lack of Authority, Responsibility and Initiative: lack of authority, lack of responsibility, lack of initiative, having no authority or responsibility, can't use initiative, no skills are needed for my job except for a strong back, lack of authority delegated to me, lack of creativity, working as a semi-professional but not considered one, not challenging, desire more authority, have more ability than I can use, job doesn't fit my abilities, can't improve organization with my suggestions.

7) Supervision and Management: supervision, management, poor supervision and management, supervising others, lack of organization in management, not sure of what is expected, boss's attitude toward employees, lack of leadership in administration, no definite rules, inefficient management, corporation policies, evaluation of employees by supervisors, personnel administrator, supervisor changes mind in situations so word is not good, too closely supervised, prejudices of supervisor, office procedures, rules not made by persons who know the job, lack of guidance from superiors concerning company objectives, inattentionality at higher levels, trivial meetings, rules and regulations, the institution itself, regimentation, organization could be run much better, low standards of organization, tenure system, people are treated differently by supervisors, bureaucracy, fairness in employment, politics, government involvement, trying to motivate people, disciplining students, lack of discipline on the part of students, my labor force, backbiting among people under me, the employees' lack of interest, hassles with sales workers, bad-mannered persons, attitudes in general, supervising and working with all women, difficulty in organizing work activities of a variety of people who have varied ideas, hard to find competent workers.

8) Co-workers: co-workers, people I work with, uncoordinated people, kindergarten attitudes of people, inconsistency of some employees, personality problems, aggravation from opposite sex, co-workers who are relatives, general attitudes of co-workers.

9) Clientele: clientele, public, types of people I run into, temperamental people, customers are hard to please, communicating with the public, getting ideas across to older people, customer gripes and complaints, dealing with the public, aggravation with people, customers, demanding customers, inconsiderate people.

10) Important Personal Reasons: important personal reasons, location, working in Chicago, distance driving to work is too far, moving frequently, retiring soon, having to give up my job for retirement, neighborhood where I work, distance traveling to work, paying a parking fee to go to work, finding a parking place, health reasons.

11) None; None, Like Everything; and Cannot Answer: none, none because I like everything, cannot answer, not sure I can find anything I dislike, no real aspect I don't like, likes most everything, like everything about my job.

12) Other: lack of understanding of youth, apathy of adults, labor unions, union, not having enough workers, don't like this type of work, not knowing enough about my job yet, not enough time to do research, unable to do work assigned, slow advancement for women, promotion not good, no advancement possible, job ended too soon, will be laid off soon, the job itself, no comment.

From the information presented in Table 16, there does not appear to be one primary reason why persons in the present study disliked their jobs. In fact, 28 percent of the respondents said there was nothing they disliked about their jobs. Twenty-one percent of the respondents, however, indicated that interpersonal relations--either with management, supervisor, co-workers, clientele or a combination of these--was the primary dislike they had for their jobs. While 13 percent of those sampled indicated they disliked their working conditions, an additional 11 percent said working hours was a major factor for dislike of their jobs.

Why People Change Jobs

A third free-response question asked of interviewees was, "What was the main reason for leaving your last job?" Eleven categories were generated by combining similar responses. The categories, with types of responses for each category, are presented below and are summarized in Table 17. (Sample responses are unedited.)

1) Salary and Benefits: salary, benefits, economic reasons, pay wasn't right for the work, underpaid, benefits of the company.

2) Working Hours: working hours, long hours of self-employment, to get less working hours, to get full-time work, seasonal work, too much detail for such long hours, not steady work, part-time work.

TABLE 17

Reasons Given by Workers as to Why They Left Their Last Jobs

Category Number	Category*	Number of Respondents	Percent of Total Sample
1	Salary and Benefits	68	11.54
2	Working Hours	16	2.72
3	Working Conditions	10	1.70
4	Dislike Job, Change Needed and Boring	46	7.81
5	Promotion and Little Opportunity for Advancement	70	11.88
6	Job Termination	84	14.26
7	People--Supervisor, Management, Co-workers and Customers	24	4.07
8	Important Personal Reasons	131	22.24
9	Military Service	20	3.40
10	None; and None, This Is First Job	110	18.68
11	Other	10	1.70
	Total	589	100.00

*Category composition explained in text.

3) Working Conditions: working conditions, excessive travel with job, no contact with people, faulty equipment, having to stand too much, better working conditions, dangerous.

4) Dislike Job, Change Needed and Boring: dislike job, change needed, boring, quit working full-time because disliked factory work, was self-employed for 25 years and got tired of it, tired of working in a corporation, time for a change, to get a new job, didn't like that type of work, change profession, disinteresting, outside my scope of interests, pressure and tension, not challenging, not enough to do, lack of sufficient work, more variety was needed, need a quieter life, too much responsibility for one person.

5) Promotion and Little Opportunity for Advancement: promotion, little opportunity for advancement, get a better job, self-improvement, advancement, no improvement, go into business for myself, chance for advancing career, lack of responsibility, to improve position, stagnant position, gained experience to get a better job, transferred and promoted, to become my own boss, reassigned.

6) Job Termination: job termination, laid off, lost lease, went out of business, running out of work, forced out, cut back in employees, reduction in labor force, lack of work related to my capabilities, bounced from job to job, laid off due to strike, business closed down by competition, company was sold, lack of experience, replaced by a machine, temporary job, new administration, company moved.

7) People--Supervisor, Management, Co-workers and Customers: people, supervisor, management, co-workers, customers, personality conflict, people weren't fair, personnel conflict, manager, internal problems, problems with manager, dissatisfied with the management, the administration, lack of security in my job because of my supervisor, unhappy management, disagreement with employer, company politics, pressure and tension of being a salesperson, being around children, didn't like politics of company and management, employee politics.

8) Important Personal Reasons: important personal reasons, family, health, geographical location, school, moving, accident, pregnancy, family life, too far away, get a job closer to home, husband transferred, vacation for a while, to complete graduate education, retirement, bad location.

9) Military Service: military service, army, went into service, got out of service.

10) None; and None, This Is First Job: none, none because this is my first job, doesn't apply.

11) Other: really didn't think about it at the time as I was very young, can't remember, no special reason.

For 19 percent of the respondents, the interview was based on their first job; consequently, the question of why they left their last job was not relevant to them (Table 17). Of the remaining 81 percent, however, 22 percent of the respondents gave important personal reasons as the primary reason they left their last position. Fourteen percent of the total sample indicated that they left their last job because it was terminated. An additional 24 percent said two reasons were key factors for changing jobs: a) salary and benefits and b) promotion or little opportunity for advancement.

The categories of a) working conditions and b) working hours, combined, represented only four percent of the responses as to why persons left their last jobs. These same two categories represented a total of 24 percent of the respondents as to why they disliked their jobs.

It was not the intent of the present study to deal directly with attitudes of workers toward satisfaction or dissatisfaction with their jobs. Information about occupations, however, usually includes some aspect of worker satisfaction. Numerous studies dealing directly with worker satisfaction and dissatisfaction have been conducted. Some of the national survey research reports include the following: Blauner (1960; 1964); Gurin, Veroff and Feld (1960); Kilpatrick, Cummings and Jennings (1964); and Wilensky (1964). A few other sources which offer reviews of literature concerning worker satisfaction include: Herzburg, Mausner, Peterson and Capwell (1957); Herzburg, Mausner and Snyderman (1959); Robinson, Athanasiou and Head (1973); Vroom (1964); etc.

Extreme caution should be exercised in interpreting the present study's three free-response questions concerning worker satisfaction. These questions were included in the survey instrument for interviewing variety. These items also permitted respondents to "sound off" about their likes and dislikes concerning the work in which they were engaged.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY OF PERSPECTIVE AND OBJECTIVE OF THE STUDY

From the beginning of time, people have strived to fulfill their needs and desires to attain their life goals. As a result of the needs and desires of individuals and groups, job have been created (Myers, 1975); and work has, indeed, become a way of life (Menninger, 1964). Since many of the needs and desires of one individual are similar to those of another individual, systems such as educational institutions have attempted to define objectives for meeting individual and group goals. In the attempt to implement programs for meeting these goals, the school has accepted some responsibility to train persons for becoming contributing members of society.

Training persons for jobs has been approached in a variety of ways. The success of the training appears to be readily observed--employment or lack of it. The advancement of technology in our nation has permitted individuals to be more mobile; consequently, it has increased the number and types of jobs in which persons will be engaged during their working lives. The rapid and continuous changes in technology require an intelligent and well-trained work force. Therefore, occupational preparation is more important today than it has been in the past.

Occupational mobility appears to be an inherent component of today's technological society. Bolles (1972), Venn (1971) and others have indicated that persons in the work force will make several job changes during their working lives. Survival in one's career, then, depends a great deal upon having a common core of skills to permit career changes with a minimum of retraining between occupations.

The present research study was conducted to identify occupational survival skills--the basic knowledges, traits and competencies necessary for an individual to possess in order to maintain a job. Occupational survival skills should permit workers not only to successfully maintain their chosen occupations, but also to move from occupation to occupation with a minimum of retraining.

SUMMARY OF METHODS AND DATA SOURCE

A tentative listing of over 500 occupational survival skills was identified through the following procedures: an extensive review of related literature; interviews with a variety of workers; consultations with manpower personnel, research authorities, vocational and technical research and development personnel at the state level, vocational educators and others; and, input from numerous students, university faculty and staff and other workers. More than 300 persons, including a panel of education experts who validated the survey instrument, reduced this list of over 500 skills to 27 basic occupational survival skills. These skills appeared to be representative of the following areas: a) interpersonal relations and communications, b) personal characteristics, c) decision making and problem solving and d) job characteristics, health and safety.

A telephone survey instrument was developed with 41 items--the 27 occupational survival skill statements to be rated by respondents as to importance in keeping their jobs, 3 open-ended questions concerning respondents' attitudes toward their jobs and 11 questions relating to demographic data.

A random sample of workers representing the general population of the State of Illinois was selected from current telephone directories. Random digit dialing was used in the Chicago area because approximately 30 percent of persons with telephones have unlisted numbers (Slattery, 1975).

A pilot test was conducted to a) refine the survey instrument, b) estimate the percentage of response and c) identify objectives for interviewer training sessions. Fifteen persons were trained to conduct the telephone survey; and, within a two-week period, 589 telephone interviews were completed.

The 589 workers interviewed were grouped according to occupations into the 9 occupational classifications used by the State of Illinois, Bureau of the Budget* (1974). This classification system is an adaptation of the system developed over 40 years ago by Alba Edwards for the U.S. Government, Department of Commerce, Bureau of the Census (1960). Frequencies and standard scores were obtained. Discriminant analysis was used in determining differences of the variables within and among the nine occupational classifications.

SUMMARY OF RESULTS

A variety of information concerning the characteristics of the study population was collected. Of the 589 respondents, 295 were female and 294 were male. About 93 percent of the sample were employed at the time of the survey. Thirteen percent of the sample were self-employed. Whereas 94 percent of the respondents worked over 20 hours per week, 39 percent of the sample indicated that their working week was over 40 hours.

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*Professional, Technical, Kindred; Managers, Officials, Proprietors; Sales Workers; Clerical Workers; Craftsmen, Foremen, Kindred, Operatives; Service Workers; Laborers, except Farm; and Farmers and Farm Workers.

The majority of respondents (74 percent) had worked for the same organization for 2 or more years; and 44 percent of the organizations employing the sample population had a work force of 101 or more persons. Although 53 percent of the respondents had supervisory responsibilities, only 30 percent of the sample were responsible for 6 or more persons.

The average age range of the sample population was between the ages of 26 and 50 (30 percent between the ages of 26 and 35, and 27 percent between the ages of 36 and 50). Ninety percent of the respondents had at least a high school education. Twenty-eight percent of the sample had a Bachelor's degree or had completed 16 years of schooling.

Interpretation of the data through the use of standard scores and discriminant analysis programs indicated that there were certain skills which are necessary for all types of workers to possess. Other skills were found to be characteristic of one or some combination of the nine occupational classifications.

Through concensus of opinion by the majority of respondents, the following skills appeared to be extremely important for occupational survival regardless of occupational classification: 1) being dependable, 2) giving an honest day's work, 3) knowing what is expected of you, 4) maintaining good health and 5) managing time and materials efficiently. Aside from these five extremely important skills, twelve additional skills were identified by the total sample (regardless of occupational classification) as being important for occupational survival: 1) getting along with people with a variety of personalities, 2) working as a team member, 3) understanding written information, 4) having basic writing skills, 5) knowing your own abilities, strengths and weaknesses, 6) being loyal to the organization for which you work, 7) making independent decisions, 8) using initiative and imagination, 9) locating information, materials or equipment, 10) working without close supervision, 11) working under tension or pressure and 12) adjusting to various work situations. The remaining ten skills were found to be characteristic of one or some combination of the nine occupational classifications.

White collar workers indicated neatness and cleanliness in appearance as well as speaking skills as especially important skills for maintaining a job. Blue collar workers considered a) following safety regulations, b) knowing how to use job materials, machines or tools and c) being punctual as extremely important skills for their occupational survival.

Managerial groups indicated that having some type of specialized training and organizing work activities of other people were the most important skills in keeping their jobs. Non-management persons, or subordinates, indicated that following instructions was their most important occupational survival skill.

Workers in the services occupational classification indicated that their most important survival skills were a) being neat and clean in appearance, b) having some type of specialized training and c) following safety regulations. The very small group of farmers and farm workers (1.70 percent of the total sample population) indicated that having basic math skills and knowing about the operating procedures of their businesses were their most important job maintenance skills.

Of the 589 total respondents in the present study, most persons indicated that they keep their jobs because of salary, security or work satisfaction. No one primary reason was given for disliking their jobs. Interpersonal relations, however, was the reason cited most often by workers who did find an aspect of their jobs they disliked. The majority of respondents who had held previous jobs indicated that some important personal reason was the primary factor as to why they left their last jobs.

CONCLUSIONS

Each of the 27 occupational survival skills rated by respondents in each of the 9 occupational groups can be considered to have some degree of importance for occupational survival. This appears to be reasonable especially when one considers that the 27 occupational survival skills were selected from a preliminary list of over 500 items. Occupational survival also appears to depend upon skills which are much broader than technical knowledge and competencies. Skills requiring general knowledge and a variety of traits appear to rank high for successful job maintenance to many persons.

Even though each of the 27 occupational survival skills in the present study appears to be of some importance to the majority of respondents, priority differences were found in the types of survival skills needed by persons in specific occupational groups. White collar workers, for example, indicated that neatness and speaking ability were the skills most important to them. Since many of these persons are in managerial or supervisory positions, it is feasible that having a neat, clean appearance and possessing speaking ability would be very important to them for job maintenance.

Personal traits appear to be just as important to blue collar workers as to white collar workers. Blue collar workers indicated that punctuality is an important skill for their job survival. Technical skills and knowledges, however, appear to be more important to them than to some other groups.

Respondents engaged in managerial work indicated that having specialized training was important to them for occupational survival. The increased emphasis today on management training programs may be supported by this finding. Possibly, one important aspect of these programs should be leadership training, since managerial groups in the study population indicated another important occupational survival skill was organizing the work activities of other persons.

Subordinate groups, such as sales and clerical workers, operatives and laborers, said it was essential for them to follow instructions. Following instructions as an occupational survival skill, however, could involve a number of other elements such as reading skills, listening skills and even decision-making skills for establishing work priorities. Although these skills appear to be secondary, it appears reasonable that they should be included under the broad classification of following instructions.

Considering that neatness was a skill rated very high for service workers, it appears that there is a direct relationship between occupational survival and the requirement for many service workers to wear some type of uniform while performing the duties related to their jobs. It follows, too, that having some type of specialized training and following safety regulations are very important for them, since there are a certain amount of job hazards connected with many types of service occupations.

Many of the respondents in the occupational group of farmers and farm workers were farm owners or managers. Having knowledge of mathematics as well as the operations of a business were skills they considered important for occupational survival. This finding appears tenable for persons managing a business, although a larger sample representing more diversified occupations within the farmers and farm workers' group may have produced a different set of priorities.

The aspect of work satisfaction is difficult to ignore when job information is desired. It is impractical, if not impossible, to draw any conclusions from the responses to the three open-ended questions concerning work satisfaction in the present survey. As a descriptive characteristic of the sample, however, it appears that people work because of the following reasons: a) money and security (financial or other) and b) work satisfaction.

Work satisfaction not only appears to be an important reason why people work, but why people pursue various types of jobs. Since increasing occupational mobility is becoming more evident, factors concerning job changing also may be important aspects relating to work satisfaction. Needs and desires of individuals are met through work. Knowing how to successfully survive in an occupation as a member of a mobile work force certainly gives additional meaning to preparing oneself with occupational survival skills--the knowledges, traits and competencies for successful maintenance of a job.

RECOMMENDATIONS

The present study has illustrated that there are some basic knowledges, traits and competencies that are common to all types of occupations. It appears that persons must possess many (or at least some degree of all) of these knowledges, traits and competencies for successful maintenance of an occupation. The following recommendations are based on the findings relating to the occupational survival skills identified and compared in the present study. These recommendations are presented as guidelines for further research and for implementation of the results of the study.

It is recommended that studies be conducted to identify and compare a wider range of knowledges, traits and competencies than was possible in the present study. The purpose of such studies should be to promote meaningful job training based on work needs. These continuous studies should be systematic and thorough to make accurate current needs assessments. Training for these needs should result from such assessments.

As current job needs are identified, comparisons should be made of previous job market needs with current ones. As commonalities are found, projections should be made of future needs of the job market. Teaching for occupational survival in the future should be based on these commonalities. Since accurate work needs projections have been lacking in the past, the goal of future studies should be aimed at eliminating erroneous projection data. Accurate job projections are necessary before meaningful job training can take place to adequately prepare students for the working world.

Based on the occupational survival skills identified in the present study, multi-media should be developed to teach more of the non-vocational and non-technical elements of occupational survival to bring the teaching of all job elements into proper balance and perspective. These materials should not be confined to the high school and post-secondary levels, but should be integrated into the entire educational system. From the time children enter school, they should be encouraged to develop occupational survival skills. Not only will they need such skills for work survival, but many of these skills appear to be valuable for survival in society.

Since many facets of occupational survival depend upon a variety of job specifications, experiences for developing skills in the following areas should be provided for every individual: a) interpersonal relations and communications, b) personal characteristics, c) decision making and problem solving and c) job characteristics, health and safety. Students should be encouraged to explore broad areas of career opportunities which provide them with a variety of experiences to made "good" career choices. Experiences should include activities representing the above areas, but should not be limited to just the educational setting. Business and industry also should have an active part in developing the skills of students and workers in these areas.

It is further recommended that a feasibility study be conducted to determine which occupational survival skills can be learned most effectively in the school setting and which skills can be developed most proficiently in a work setting. A study of this nature should include, but not be limited to, a) an assessment of facilities designed to deal most practicably with the various occupational survival skills and b) an assessment of personnel who would direct the occupational survival skill development of individuals. For example, teacher educators may need additional training in many of the occupational survival skills so they can effectively teach and guide others in their development of occupational survival skills. Even though the media may be available, teachers must possess the exemplary characteristics they desire their students to acquire.

Finally, programs need to be developed whereby business and industry have more contact and input into the educational systems so that the goals and objectives of the schools will be more compatible with the needs and requirements of business. The needs of business and the needs of individuals must be considered in a corresponding relationship. It is by meeting common goals that society will be benefited. Through work, individuals within a society gain recognition, status and satisfaction. By better preparing people for work, the better able they will be to survive in the complex business-oriented society that exists in the United States.

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APPENDIX A

SURVEY INSTRUMENT (EMPLOYED FORM--FORM "E")

OCCUPATIONAL SURVIVAL SKILLS STUDY--O'NEIL--UNIVERSITY OF ILLINOIS

Telephone Interview with Illinois Residents

April, 1975

Code	______	1-5
Quest #	______	6-9
Intvr #	______	10-11
Intv #	______	12-15

(TIME INTERVIEW BEGAN______a.m./p.m.)

Address______________________________

Telephone ____-__-____-____-____

Contact Attempts:

#	Date	Time	Int	Ref	Bsy	NoA	InN	Une	Rtr	Other (specify)	Appt Date/Time
1	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
2	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
3	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
4	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
5	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________

Final Disposition:

Intv ☐ Noncontact ☐ Refusal ☐ Other______________________________

Intvr Notes____

(START)

- Hello, my name is ____________________ and I'm calling from the University of Illinois. We're conducting a study of Illinois residents who are over 18 years of age and who are employed. We want to determine what people think are the most important skills in keeping their jobs. If we can find out what skills workers need for keeping their jobs, we can better prepare students for the working world. Are you 18 or older and presently employed or have been employed sometime during the past year?

  [YES] [NO] → May I speak with someone in your household who is 18 or older and who is presently employed or has been employed sometime during the past year?

  [YES] [NO] → When is the best time to call back to speak with ________________? Thank you. Goodby.

  ↓ (GO BACK TO "START")

- Would you participate in this study by answering a few questions about your job activities?

  [YES] [NO] → Thank you. Goodby.

- Thank you. Are you presently employed?

  [YES] [NO] → (GO TO FORM "U"--UNEMPLOYED)

  ↓ (GO TO FORM "E"--EMPLOYED)

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OSS STUDY "EMPLOYED" FORM (FORM 1) Page 2

Quest # ______

1. Employed . . . . . . 1☑ 16

2. What is your main occupation or job title ______________________________?

What kind of work do you do; that is,
what are your duties in this job ______________________________?

In what type of business or organization is this; that
is, what product is made or what service is given ______________________________?

Pro, Tec Kindred	Man, Prp Officals	Sales Workers	Clerical Workers	Crftsmn, Frmn Kin	Opertvs	Service Workers	Labrers, non-Farm	Farmers, Fm Wrkrs	
1☐	2☐	3☐	4☐	5☐	6☐	7☐	8☐	9☐	17

For each of the following items, please tell me how important it is in keeping your job. Do not base your answer on how important the item is to you personally, but on how important the item is in keeping your job. For example,

3. In keeping your job, how important is it for you to be punctual? Is this Very Important, Important, Somewhat Important, Not Important or Does Not Apply to your job? . . . . ☐ VI 4 ☐ I 3 ☐ SI 2 ☐ NI 1 ☐ DNA 0 18

4. In keeping your job, how important is it for you to be dependable? Is this Very Important, Important, Somewhat Important, [illegible] Important or Does Not Apply to your job? . . . . ☐ VI 4 ☐ I 3 ☐ SI 2 ☐ NI 1 ☐ DNA 0 19

Remember, do not base your answers on how important the items are to you personally, but on how important the items are in keeping your job.

5. In keeping your job, how important is it for you
. . .to get along with people with a variety of personalities . . . . . . ☐ VI 4 ☐ I 3 ☐ SI 2 ☐ NI 1 ☐ DNA 0 20

6. How important is it for you
. . .to work as a team member . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 21

7. . . .to organize work activities of other people . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 22

8. . . .to understand written information . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 23

9. . . .to have basic writing skills . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 24

10. . . .to have basic speaking skills . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 25

11. In keeping your job, how important is it for you
. . .to be neat and clean in appearance . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 26

12. . . .to maintain good health . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 27

13. . . .to know your own abilities, strengths and weaknesses . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 28

14. . . .to give an honest day's work . . . . ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ 0 29

OSS STUDY "EMPLOYED" FORM (FORM 1) Page 3

E

	VI	I	SI	NI	DNA	
15. In keeping your job, how important is it for you . . .to be loyal to the organization for which you work	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	30
16. . . .to make independent decisions	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	31
17. . . .to use initiative and imagination	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	32
18. . . .to know what is expected of you	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	33
19. In keeping your job, how important is it for you . . .to have basic arithmetic skills	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	34
20. . . .to know how to use job materials, machines or tools	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	35
21. . . .to locate information, materials or equipment	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	36
22. . . .to have some type of specialized training	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	37
23. In keeping your job, how important is it for you . . .to have a basic knowledge of your organization's operating procedures	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	38
24. . . .to follow instructions	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	39
25. . . .to work without close supervision	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	40
26. . . .to work under tension or pressure	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	41
27. In keeping your job, how important is it for you . . .to adjust to various work situations	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	42
28. . . .to manage time and materials efficiently	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	43
29. . . .to follow safety regulations	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	44

30. How many hours per week do you usually work?	10 or less	1☐	45
	11-20	2☐	
	21-39	3☐	
	40	4☐	
	41 or more	5☐	
31. Are you self-employed?	Yes	1☐	46
	No	2☐	
32. Approximately how long have you worked at your present business or organization? (specify)________________	less than 6 mo.	1☐	47
	6 mo.-1+ yr.	2☐	
	2 yr.-5+ yr.	3☐	
	6 yr.-10+ yr.	4☐	
	11 or more yr.	5☐	
33. Approximately how many employees are there in the business or organization where you work?	10 or less	1☐	48
	11-25	2☐	
	26-50	3☐	
	51-100	4☐	
	101-500	5☐	
	501 or more	6☐	

E

34. Do you supervise or direct the work activities of other persons? (IF SO) Approximately how many?	none	1 ☐	49
	5 or less	2 ☐	
	6-10	3 ☐	
	11-25	4 ☐	
	26-50	5 ☐	
	51 or more	6 ☐	
35. What is the Main Reason for keeping your present job? (specify) ____________________	salary, financial security or job security . .	1 ☐	50-51
	work satisfaction	2 ☐	
	experience or good advancement opportunities .	3 ☐	
	better position unavailable	4 ☐	
	important personal reasons (family, school, geographical location, etc.)	5 ☐	
	other	6 ☐	
36. What is the one thing you Dislike Most about your present job? (specify) ____________________	salary or benefits	1 ☐	52-53
	working hours	2 ☐	
	working conditions	3 ☐	
	routine work or boredom	4 ☐	
	pressure or tension	5 ☐	
	lack of authority, responsibility or initiative	6 ☐	
	supervision or management	7 ☐	
	co-workers	8 ☐	
	clientele	9 ☐	
	important personal reasons (location, moving frequently, health, etc.)	10 ☐	
	none; none, like everything; or cannot answer.	11 ☐	
	other	12 ☐	
37. What was the Main Reason for leaving your last job? (specify) ____________________	salary or benefits	1 ☐	54-55
	working hours	2 ☐	
	working conditions	3 ☐	
	dislike job, change needed or boring	4 ☐	
	promotion or little opportunity for advancement	5 ☐	
	job termination	6 ☐	
	people—supervisor, management, co-workers or customers	7 ☐	
	important personal reasons (family, school, geographical location, health, etc.) . . .	8 ☐	
	military service	9 ☐	
	none; or none, this is first job	10 ☐	
	other	11 ☐	

38. What is the highest level of school you have completed?

05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	56-57
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
							HS Grad				BA/ BS		MA/ MS			MD/ PhD		

39. What is your age?

18-20	21-25	26-35	36-50	51-65	66 or older	58
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	

40. (IF INTERVIEWER CANNOT DETERMINE) What is your sex?	Male	1 ☐	59
	Female	2 ☐	

Thank you for your cooperation. Goodby.

(TIME INTERVIEW ENDED_______a.m./p.m.)

APPENDIX B

SURVEY INSTRUMENT (UNEMPLOYED FORM--FORM "U")

OCCUPATIONAL SURVIVAL SKILLS STUDY--O'NEIL--UNIVERSITY OF ILLINOIS

Telephone Interview with Illinois Residents

April, 1975

(TIME INTERVIEW BEGAN______a.m./p.m.)

Code	______	1-5
Quest #	______	6-9
Intvr #	______	10-11
Intv #	______	12-15

Address______________________________ Telephone •_____•__•_____•_____•______•

Contact Attempts:

#	Date	Time	Int	Ref	Bsy	NoA	InN	Une	Rtr	Other (specify)	Appt Date/Time
1	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
2	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
3	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
4	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________
5	____	____	☐	☐	☐	☐	☐	☐	☐	____________	________

Final Disposition:

Intv ☐ Noncontact ☐ Refusal ☐ Other______________________________

Intvr Notes____

(START)

- Hello, my name is ____________________ and I'm calling from the University of Illinois. We're conducting a study of Illinois residents who are over 18 years of age and who are employed. We want to determine what people think are the most important skills in keeping their jobs. If we can find out what skills workers need for keeping their jobs, we can better prepare students for the working world. Are you 18 or older and presently employed or have been employed sometime during the past year?

[YES] [NO]——→ May I speak with someone in your household who is 18 or older and who is presently employed or has been employed sometime during the past year?

[YES] [NO]——→ When is the best time to call back to speak with ________________? Thank you. Goodby.

↓

(GO BACK TO "START")

- Would you participate in this study by answering a few questions about your job activities?

[YES] [NO]——→ Thank you. Goodby.

↓

- Thank you. Are you presently employed?

[YES] [NO]——→ (GO TO FORM "U"--UNEMPLOYED)

↓

(GO TO FORM "E"--EMPLOYED)

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OSS STUDY "UNEMPLOYED" FORM (FORM 2) U Page 2 Quest # ______

1. How long has it been since you were last employed?

Unemployed: less than 3 mo. . . . . 2☐ 16
3-5+ mo. . . . . 3☐
6-8+ mo. . . . . 4☐
9-12 mo. . . . . 5☐

2. What was your last main occupation or job title ______________________________?

What kind of work did you do; that is, what were your duties in this job ______________________________?

In what type of business or organization was this; that is, what product was made or what service was given ______________________________?

Pro, Tec Kindred	Man, Prp Officals	Sales Workers	Clerical Workers	Crftsmn, Frmn Kin	Opertvs	Service Workers	Labrers, non-Farm	Farmers, Fm Wrkrs	
1☐	2☐	3☐	4☐	5☐	6☐	7☐	8☐	9☐	17

Please answer the remaining questions based on this job. For each of the following items, please tell me how important it was in keeping your job. Do not base your answer on how important the item is to you personally, but on how important the item was in keeping your job. For example,

	VI	I	SI	NI	DNA	
3. In keeping your job, how important was it for you to be punctual? Was this Very Important, Important, Somewhat Important, Not Important or Did Not Apply to your job?	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	18
4. In keeping your job, how important was it for you to be dependable? Was this Very Important, Important, Somewhat Important, Not Important or Did Not Apply to your job?	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	19

Remember, do not base your answers on how important the items are to you personally, but on how important the items were in keeping your job.

	VI	I	SI	NI	DNA	
5. In keeping your job, how important was it for you . . .to get along with people with a variety of personalities	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	20
6. How important was it for you . . .to work as a team member	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	21
7. . . .to organize work activities of other people	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	22
8. . . .to understand written information	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	23
9. . . .to have basic writing skills	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	24
10. . . .to have basic speaking skills	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	25
11. In keeping your job, how important was it for you . . .to be neat and clean in appearance	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	26
12. . . .to maintain good health	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	27
13. . . .to know your own abilities, strengths and weaknesses	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	28
14. . . .to give an honest day's work	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	29

OSS STUDY "UNEMPLOYED" FORM (FORM 2) Page 3

U

	VI	I	SI	NI	DNA	
15. In keeping your job, how important was it for you . . .to be loyal to the organization for which you worked	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	30
16. . . .to make independent decisions	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	31
17. . . .to use initiative and imagination	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	32
18. . . .to know what was expected of you	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	33
19. In keeping your job, how important was it for you . . .to have basic arithmetic skills	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	34
20. . . .to know how to use job materials, machines or tools	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	35
21. . . .to locate information, materials or equipment	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	36
22. . . .to have some type of specialized training	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	37
23. In keeping your job, how important was it for you . . .to have a basic knowledge of your organization's operating procedures	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	38
24. . . .to follow instructions	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	39
25. . . .to work without close supervision	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	40
26. . . .to work under tension or pressure	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	41
27. In keeping your job, how important was it for you . . .to adjust to various work situations	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	42
28. . . .to manage time and materials efficiently	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	43
29. . . .to follow safety regulations	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	44

30. How many hours per week did you usually work?

10 or less . . . . . 1 ☐ 45
11-20 . . . . 2 ☐
21-39 . . . . 3 ☐
40 . . . . 4 ☐
41 or more . . . . . 5 ☐

31. Were you self-employed?

Yes . . . . 1 ☐ 46
No . . . . 2 ☐

32. Approximately how long did you work at your last business or organization?

(specify)________________

less than 6 mo. . . . 1 ☐ 47
6 mo.-1+ yr. . . . . 2 ☐
2 yr.-5+ yr. . . . . 3 ☐
6 yr.-10+ yr. . . . . 4 ☐
11 or more yr. . . . 5 ☐

33. Approximately how many employees were there in the business or organization where you worked?

10 or less . . . . . 1 ☐ 48
11-25 . . . . 2 ☐
26-50 . . . . 3 ☐
51-100 . . . . 4 ☐
101-500 . . . . 5 ☐
501 or more . . . . . 6 ☐

U

34. Did you supervise or direct the work activities of other persons?

(IF SO) Approximately how many?

none . . . . 1☐ 49
5 or less . . . . 2☐
6-10 . . . . 3☐
11-25 . . . . 4☐
26-50 . . . . 5☐
51 or more . . . . . 6☐

35. What was the Main Reason for keeping your last job?

(specify) ______________________

salary, financial security or job security . . 1☐ 50-51
work satisfaction . . . . 2☐
experience or good advancement opportunities . 3☐
better position unavailable . . . . 4☐
important personal reasons (family, school, geographical location, etc.) . . . . 5☐
other . . . . 6☐

36. What was the one thing you Disliked Most about your last job?

(specify) ______________________

salary or benefits . . . . 1☐ 52-53
working hours . . . . 2☐
working conditions . . . . 3☐
routine work or boredom . . . . 4☐
pressure or tension . . . . 5☐
lack of authority, responsibility or initiative . . . . 6☐
supervision or management . . . . 7☐
co-workers . . . . 8☐
clientele . . . . 9☐
important personal reasons (location, moving frequently, health, etc.) . . . . 10☐
none; none, like everything; or cannot answer. 11☐
other . . . . 12☐

37. What was the Main Reason for leaving your last job?

(specify) ______________________

salary or benefits . . . . 1☐ 54-55
working hours . . . . 2☐
working conditions . . . . 3☐
dislike job, change needed or boring . . . . . 4☐
promotion or little opportunity for advancement . . . . 5☐
job termination . . . . 6☐
people—supervisor, management, co-workers or customers . . . . 7☐
important personal reasons (family, school, geographical location, health, etc.) . . . 8☐
military service . . . . 9☐
none; or none, this is first job . . . . 10☐
other . . . . 21☐

38. What is the highest level of school you have completed?

05☐	06☐	07☐	08☐	09☐	10☐	11☐	12☐	13☐	14☐	15☐	16☐	17☐	18☐	19☐	20☐	21☐	22☐	56-57
							HS Grad				BA/ BS		MA/ MS			MD/ PhD		

39. What is your age?

18-20 ☐	21-25 ☐	26-35 ☐	36-50 ☐	51-65 ☐	66 or older ☐	58
1	2	3	4	5	6	

40. (IF INTERVIEWER CANNOT DETERMINE) What is your sex?

Male . . . . 1☐ 59
Female . . . . 2☐

Thank you for your cooperation. Goodby.

(TIME INTERVIEW ENDED______a.m./p.m.)

APPENDIX C

SUPPLEMENTAL TABLES

TABLE C-1

Standardized Discriminant Weights Associated with Each of the 27 Variables for the Three Significant Functions

Occupational Survival Skill	Value of Standardized Discriminant Weight		
	First Sig. Disc. Function	Second Sig. Disc. Function	Third Sig. Disc. Function
X_1 be punctual	- 4.9497	1.8304	.6079
X_2 be dependable	- 1.1034	- 2.7194	- 1.1696
X_3 get along with people with a variety of personalities	.7816	.8123	- 2.3679
X_4 work as a team member	.5612	1.7164	2.4808
X_5 organize work activities of other people	- 2.6290	10.9390	- 2.4065
X_6 understand written information	2.6695	3.3908	- 4.7904
X_7 have basic writing skills	.1918	.6088	.2430
X_8 have basic speaking skills	6.4866	1.5346	1.4160
X_9 be neat and clean in appearance	16.6050	- 3.5104	9.4082
X_{10} maintain good health	- 2.5284	- 3.3116	3.4135
X_{11} know your own abilities, strengths and weaknesses	- .6427	- .1760	- 1.5475
X_{12} give an honest day's work	- 1.4660	- 3.5310	- 5.6067
X_{13} be loyal to the organization for which you work	- .8157	- 4.5668	- 4.7260
X_{14} make independent decisions	- 2.6161	3.7071	- .3319
X_{15} use initiative and imagination	.8344	.8884	- 2.0443
X_{16} know what is expected of you	1.2933	1.2773	2.7861
X_{17} have basic arithmetic skills	1.1012	- .0590	- 8.6374
X_{18} know how to use job materials, machines or tools	- 6.8679	- 5.3761	- 2.6492
X_{19} locate information, materials or equipment	- .8778	2.7506	- .0524
X_{20} have some type of specialized training	- 1.1453	12.7670	9.2291
X_{21} have a basic knowledge of your organization's operating procedures	3.1702	- 1.2064	- 7.6425
X_{22} follow instructions	1.7373	- 9.2009	- .7450
X_{23} work without close supervision	- 1.6119	- .5899	- .6413
X_{24} work under tension or pressure	1.7799	- 1.2509	3.7095
X_{25} adjust to various work situations	- 2.2589	3.6729	- 2.8545
X_{26} manage time and materials efficiently	1.2315	- 3.1421	- 5.3992
X_{27} follow safety regulations	-10.9580	1.2816	7.6794

TABLE C-2

Values of Each of the Nine Occupational Group Means for the Three Significant Functions

Occupational Classification	Value of Occupational Group Mean		
	First Sig. Disc. Function	Second Sig. Disc. Function	Third Sig. Disc. Function
Gr 1 Professional, Technical, Kindred	- .0846	.2849	- 2.1279
Gr 2 Managers, Officials, Proprietors	.2335	.0919	- 2.6389
Gr 3 Sales Workers	.9362	- 1.0399	- 2.7001
Gr 4 Clerical Workers	.3071	- 1.2386	- 2.4251
Gr 5 Craftsmen, Foremen, Kindred	- 1.4541	- .2007	- 2.5139
Gr 6 Operatives	- 1.1747	- 1.5239	- 2.3331
Gr 7 Service Workers	- .2229	- .7797	- 1.4039
Gr 8 Laborers, except Farm	- 1.5952	- 1.6457	- 2.2643
Gr 9 Farmers and Farm Workers	- 1.7131	- .0380	- 3.5027

VITA

Sharon Lee (Lund) O'Neil was born in Spokane, Washington, on June 23, 1942. Her elementary education was begun in Grand Coulee, Washington, and completed, along with her high school education, in Walla Walla, Washington, where she graduated from Walla Walla Valley Academy in 1960.

She attended Walla Walla College in College Place, Washington, where she received the Bachelor of Arts degree in Interior Design and Decoration in 1964 and the Master of Arts degree in Education--Counseling and Guidance in 1967.

Her nine years of teaching experience has included one year of elementary teaching, five years of high school teaching and three years of college and university teaching. She also has had three years of elementary and high school counseling experience and over three years of experience in general office and secretarial work.

She was awarded teaching assistantships at Washington State University, Pullman, Washington (1965), where she team taught an introduction to interior design class; and at the University of Illinois, Urbana-Champaign (1973-75), where she taught the business education methods courses. She was a recipient of a Leadership Development Award, Educational Professional Development Act (EPDA) Fellowship, from January, 1975, to May, 1976. She received the Doctor of Philosophy degree in (Vocational and Technical) Education from the University of Illinois in 1976.

Upon completion of her studies at the University of Illinois, she accepted an administrative internship with the State of Connecticut Department of Vocational Education, Hartford, Connecticut.

Her professional affiliations include: American Vocational Association, National Business Education Association, American Educational Research Association, National Education Association, Delta Pi Epsilon and Phi Delta Kappa.